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ABSTRACT

The economic impact in Pennsylvania of its degree-granting colleges and universities was studied in 1979-80. Information was compiled from existing published sources, and by questioning officials at 125 two-year and four-year accredited degree-granting colleges and universities. The economic impacts in their respective communities of individual colleges and universities were measured by a series of case studies conducted by volunteering institutions. The impact of an institution as a consumer is examined in relation to: institutional expenditures, faculty and staff expenditures, student expenditures, direct support employees, and total expenditures. The impact of the institutions as an employer is examined in relation to: institutional employment, direct support employees, multiplier effects on Pennsylvania employment and income; total higher education-related employment, and total higher education-related payroll. The impact of an institution as a property owner and as an investor, and other impacts of institutions of higher education also are assessed. Additional information includes: higher education enrollments, number of degrees granted, and current-funds revenues of all Pennsylvania institutions of higher education. In order to place higher education in Pennsylvania in a national perspective, comparisons are made with 10 relatively large or contiguous states, as well as with national averages. Among these states, Pennsylvania in 1978 had the third largest number of institutions and branches of higher education, representing 5.8 percent of the nation's total. Information also is presented on: the migration rate for out-of-state students enrolling in Pennsylvania's institutions, the participation rate in higher education for persons in the 18-to-24 age bracket, and the growth rate for current-funds revenues. A sample questionnaire is appended. (SW)

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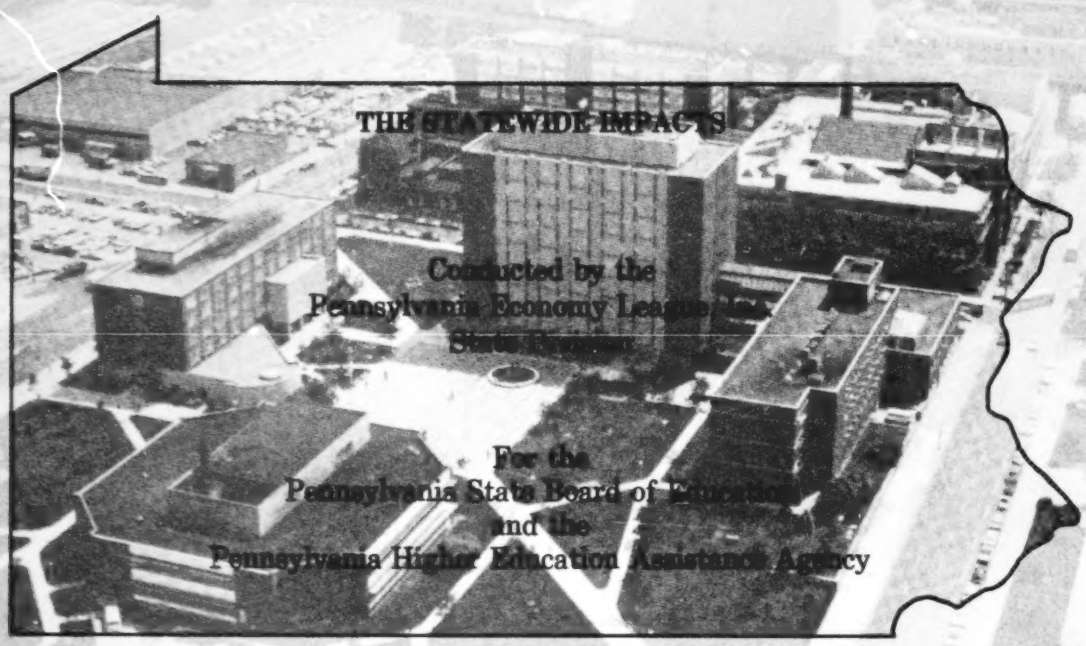
HIGHER EDUCATION AND THE ECONOMY

A SURVEY OF THE IMPACTS ON PENNSYLVANIA'S ECONOMY OF ITS COLLEGES AND UNIVERSITIES



Conducted by the
Pennsylvania Economy League, Inc.
State Harrisburg

For the
Pennsylvania State Board of Education
and the
Pennsylvania Higher Education Assistance Agency

in cooperation with the
Pennsylvania Association of Colleges and Universities

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HIGHER EDUCATION AND THE ECONOMY

A SURVEY OF THE IMPACTS ON PENNSYLVANIA'S ECONOMY OF ITS COLLEGES AND UNIVERSITIES

THE STATEWIDE IMPACTS

Conducted by the
Pennsylvania Economy League, Inc.
State Division

For the
Pennsylvania State Board of Education
and the
Pennsylvania Higher Education Assistance Agency

in cooperation with the
Pennsylvania Association of Colleges and Universities

November, 1981

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FOREWORD

A Need for Information

Pennsylvanians traditionally have endeavored to meet the economic needs of the state's institutions of higher education through generous private support and in growing public tax support. These endeavors are sometimes handicapped by lack of tangible and reliable information on the measurable economic returns to be expected from the dollars invested in higher education.

There have been special studies by governing bodies and administrators of institutions of higher education in Pennsylvania and elsewhere to measure, in quantitative terms, the impact of individual institutions on the economies of their respective communities. However, there is little or no "hard" data available to assess on an aggregate basis the total contribution made to the state's economic well-being by Pennsylvania's higher education institutions.

The availability of such comprehensive data can be of substantial value to college and university administrators, and to those who make decisions as to current and future support of higher education, whether these be private individuals, corporations, foundations or government officials. Such data should aid them in formulating and supporting policies having to do with the amounts, allocations and conditions of future support for higher education in Pennsylvania.

To Meet the Need

It is for the purpose of meeting this need for objective and reliable data, encompassing most public and privately supported higher education institutions in Pennsylvania, that a comprehensive analytical survey was proposed by leaders in higher education coordinated through the Pennsylvania Association of Colleges and Universities.

A primary objective of the proposed survey was to assemble, classify, analyze and interpret the meaning of available factual data measuring current annual contributions by colleges and universities to the community, regional and state-wide economies in Pennsylvania, and to compute the immediate net economic return for public and private dollars invested in higher education.

Commissioned to conduct the study was the Pennsylvania Economy League, Inc., a non-profit, citizen-supported public affairs research agency. Official study sponsorship was shared by the Pennsylvania State Board of Education and the Pennsylvania Higher Education Assistance Agency. The latter agency and the Buhl Foundation shared in financing most of the study cost.

The 14-month study was begun in August, 1980. General surveillance of the study design and conduct was the function of a nine-member Overview Committee of college presidents and education officials, and technical assistance was provided by a Technical Advisory Committee of economists and academic business administrators (see Appendix A for committee rosters).

The Study Mission

The mission of the study was to address and provide responses to a series of primary questions bearing upon the economic roles of colleges and universities:

1. Considered as operating service enterprises, what do the institutions of higher education contribute directly and indirectly to the economic sustenance of their communities and to the state in terms of payrolls generated purchases of goods and services, capital assets acquired, tax contributions and other inputs in their capacities as:
   a. Instruction centers, and as
   b. Proprietors of auxiliary activities and facilities?
2. What are the measurable rates and amounts of investment in higher education generated from tuitions, fees and endowments or subsidies by private and public sources, and what are the net estimates of potential economic return per dollar of funds so invested?
3. To what extent are business enterprises provided direct services by higher education institutions including, in addition to research facilities and services, in-service training for employees, personnel recruitment and placement services, conference facilities, management and technical consultation and information exchanges, library facilities, joint research projects, etc.?
4. To what extent do Pennsylvania's institutions of higher education attract funds from out-of-state for investment or expenditure in Pennsylvania?
5. What are the long-term measurable or immeasurable increments in productive capability and earning power of those benefitting directly from higher education, and what portion of that economic increment might be expected to be retained within the state's boundaries?
6. What are the measurable long-range foreseeable revenue requirements and expenditure estimates of higher education in Pennsylvania, and what are the consequent demands upon and contributions to the state's economy?
7. What is the "balance of trade" between Pennsylvania and other states in terms of personal, corporate and public funds (including scholarships and loans) "exported" to purchase higher education from out-of-state institutions, and "imported" to buy from Pennsylvania institutions?

Data are not readily available to permit precise and accurate answers to all of these questions. Nevertheless, it is the objective of the study to assemble and present such available information as may add to the present body of knowledge relative to these areas of inquiry which are critical to the future of higher education in Pennsylvania.

Study Methodology — How It Was Done

Recognition of the need and importance of measuring the economic impacts of higher education has been evidenced in Pennsylvania and elsewhere by a considerable number of analytical efforts by or on behalf of individual colleges and universities and, in some cases, groups of institutions. Out of this has developed a body of knowledge and experience concerning the practicability, limitations, potential usefulness and methodology of research procedures. These provided a useful foundation for the proposed Pennsylvania study.

A first step in conducting the study was to review the literature and, as feasible, to interview those who have conducted higher education economic impact studies of institutions within and outside Pennsylvania, and who otherwise have knowledge and experience which would be useful in planning, designing and conducting the proposed survey.

This led to the development of a system and format for identifying and assembling kinds and sources of data relevant to the basic questions to be addressed, devising

analytical models and methods for inter-relating and analyzing the compiled data and designing formats for presentation of the results.

Specific information concerning the characteristics and economic activities of all degree-granting institutions of higher education in Pennsylvania was obtained through use of questionnaires, to supplement and update information compiled by and available from the Pennsylvania Department of Education, the U.S. Department of Education and other central sources.

Comparisons with other states were made, as feasible, to place Pennsylvania in a national context as to its higher education establishment and effort.

The information so obtained was tabulated, consolidated, classified and analyzed, and the results interrelated and interpreted employing automatic data processing equipment as appropriate to arrive at conclusions concerning the statewide economic interactions of Pennsylvania's higher education institutions, classified according to sizes and types of institutions and by geographic regions. The results of the statewide survey are set forth in this report. They are considered to be conservative in magnitude, because estimates or assumptions were rejected or minimized unless supported by reliable evidence.

Case Studies

To supplement, validate and demonstrate the general statewide findings and conclusions, community economic impact "case studies" were conducted, concurrent with the statewide survey, by 17 volunteer institutions (see Appendix for listing). Representing a diverse sampling of size, offerings, communities, and sources of support, the case study institutions account for 14 percent of the total number, and 30 percent of total enrollment of all Pennsylvania institutions. The survey staff provided uniform study guidelines and procedures and general consultative assistance. Each case study institution provided research staff for conduct of its study and preparation of its individual report.

A general summary of the comparative results of several case studies have been prepared as an addendum to the statewide survey report.

Institutional Scope

In the compilation and presentation of general data concerning higher education in Pennsylvania, all post-secondary institutions, including proprietary schools, two-year private colleges and theological seminaries are included. In the more intensive economic impact surveys, including the questionnaire procedures and case studies, only accredited four-year and graduate degree-granting colleges and universities and public two-year community colleges are included. While recognizing their special contribution to the state's economy, it is assumed that meaningful analysis of the economic impacts of the 36 licensed proprietary schools might best be accomplished as a separate study.

For Future Use

The methodology, systems and models utilized in the statewide and individual institution case studies are to be incorporated in procedural manuals intended to be made available to individual institutions and private or governmental associations in Pennsylvania and other states, for future use in conducting separate institutional studies, updating the Pennsylvania statewide survey, or undertaking similar surveys in other states.

Ackowledgements

Principal research responsibility for the study was assigned to staff associate Robert Greenwood, assisted by staff associates Lewis Lee and Kenneth Crump.

Invaluable counsel and assistance were provided by members of the study Overview Committee, chaired by Rev. William J. Byron, S.J., President, University of Scranton and by the Technical Advisory Committee.

Special appreciation is reserved for the willing assistance of staff of the Pennsylvania Higher Education Assistance Agency which provided computer services, for the counsel and information provided by staff of the Pennsylvania Department of Education, and for the cooperation of the presidents and administrative staffs of the participating colleges and universities and of their association, the Pennsylvania Association of Colleges and Universities.

The study could not have proceeded without the generous financial support of the Buhl Foundation and the Pennsylvania Higher Education Assistance Agency.

HIGHER EDUCATION AND THE ECONOMY

EXECUTIVE SUMMARY

Foreword

Conducted by the Pennsylvania Economy League under the official sponsorship of the Pennsylvania State Board of Education and the Pennsylvania Higher Education Assistance Agency, with coordination by the Pennsylvania Association of Colleges and Universities and the shared financial support of the Buhl Foundation, the study of the economic impact in Pennsylvania of its degree-granting colleges and universities had as its major mission compilation of factual data measuring current annual contributions by colleges and universities to the community, regional and statewide economies in Pennsylvania. Its broad objective was to compute the immediate net economic return for public and private dollars invested in higher education.

Information was compiled from existing published sources, and by questionnairing 125 two and four-year accredited degree-granting colleges and universities.

The economic impacts in their respective communities of individual colleges and universities were measured by a series of case studies conducted by volunteering institutions. The results of the case studies are summarized in a separate Report of this study.

Status and Trends

The decade of the 1970's brought generally rapid growth among several types of institutions of higher education in Pennsylvania, measured by a 21 percent increase in enrollments. Most rapid expansion was in the community colleges and proprietary schools. A reversal of this trend is anticipated in the 1980's (with a possible exception for the community colleges) with a projected 15 percent downturn in enrollments, traceable to declining numbers of high school graduates and of the percentage who will continue their formal education.

The number of degrees granted by all classes of higher education institutions in Pennsylvania increased by 19 percent from 1971 to 1980, and is expected to decline by approximately 11 percent by 1991. The greatest growth in the 1970's was in associate degrees awarded by community colleges.

Of the 73,551 bachelor's and higher degrees granted in 1979, approximately one out of three was in a field having special relevance to the state's economy, including agriculture and natural resources, business and management, engineering and first-professional degrees.

Current-funds revenues of all Pennsylvania institutions of higher education grew by nearly 140 percent between 1970-79 to $2.8 billion. Revenues of the community colleges and the proprietary schools had the greatest rates of growth of all categories of institutions.

Current-funds expenditures of Pennsylvania higher education institutions totaled $2.7 billion in 1979, up 135 percent over the figure in 1970. The expenditures of the community colleges and the proprietary schools grew the fastest among all institutional categories.

Full-time instructional faculty totaled 20,196 in 1979 at all of the Commonwealth's institutions of higher education. This was a 16.1 percent increase over 1970.

Interstate Context

In order to place higher education in Pennsylvania in a national perspective, comparisons were made with 10 relatively large or contiguous states, as well as with national averages. Among these states, Pennsylvania in 1978 had the third largest number of institutions and branches of higher education, representing 5.8 percent of the nation's total number. Enrollments in Pennsylvania totaled 4.2 percent of all U.S. enrollments and ranked the state fifth among the 11 states. Between 1971-77, Pennsylvania enrollments grew by less than half the percentage for the U.S. total and ranked Pennsylvania tenth among the 11 states.

The migration rate for out-of-state students enrolling in Pennsylvania's institutions was below the U.S. average for all states in 1976.

The participation rate in higher education for persons in the 18-24 age bracket in Pennsylvania was well below the national average: 33 percent versus 40 percent. Among the 11 states, Pennsylvania had the the third lowest figure for this measurement.

The growth rate for current-funds revenues of all institutions in Pennsylvania between 1971-77 approximated the national rate: 82 per cent. Current-funds expenditures of higher education institutions in Pennsylvania grew by 80.3 percent between 1971-77, slightly below the national rate.

Economic Relationships

The principal and ultimate function of higher education is to produce an intangible "value added" to the knowledge, creative capabilities, economic productivity and cultural enrichment of students.

An ancillary and short-term function is to channel existing resources — including family or student earnings and savings, corporate earnings, public funds or philanthropic assets — to supply the necessary elements of the instruction process. These resources, expended to provide the necessary manpower, materials, services and plant assets — are introduced and recirculated in the regional economy in the forms of wages, purchases of goods and services, contributions to government, acquisitions of capital assets and accretions to net savings.

Expenditures by colleges and universities and their employees and students are enhanced by the "multiplier effect" of their being respent successively to create additional jobs and expenditures within the state or region.

While from a national perspective colleges and universities may be said to serve largely to redirect earnings and savings through different channels than might otherwise occur, rather than to create or enlarge tangible wealth, their net impact within a limited geographic region — be it a state or a community — is enhanced by transferring resources from one geographic area to another. Thus, from a practical standpoint, it is a justifiable assumption that the collection and disbursement of funds by institutions of higher education, separately or collectively, result in a net increment to the economy of the state and to the respective host communities.

In addition to their economic roles as operating enterprises and learning centers, many colleges and universities provide direct services and facilities to business designed

to improve the quality of products and the efficiency with which they are produced. Included are talents and facilities for independent technical and administrative research, expert consultation related to products and production, manpower training skills and facilities, facilities and staff for seminars and conferences, and the services of skilled personnel on corporate boards and advisory committees.

Investing in Human Capital

Human capital returns of higher education investment, while admittedly more difficult to quantify, are nevertheless as important as the purely economic impacts.

In determining the rate of return of investment in human capital, costs of the investment must be offset by the likely benefits.

Benefits inure both to individuals and society. Personal benefits include enhanced employability and the likelihood of increased earnings over a working lifetime. Society benefits largely through increased productivity of the college graduate, increased taxes and creation of a reservoir of individuals having leadership, inventive and proprietary capabilities and likely to become participants in civic, public service, charitable and political affairs of the community, state and nation.

Economic Impacts

The economic impacts of institutions of higher education are summarized below. The results of the analyses of these impacts show the importance of the institutions to Pennsylvania while functioning in roles generally incidental to their primary purpose of providing post-secondary education and skills development. These roles include those of consumer, employer, investor and property owner.

Impact of the institution as a consumer — fiscal year 1979-80

Institutional expenditures:

— Total expenditures for non-capital goods and services made by institutions of higher education were $984,503,605. Of this amount, $814,449,503 was expended in Pennsylvania.

Faculty and staff expenditures:

— Total expenditures for non-capital goods and services made by faculty and staff personnel residing in Pennsylvania were $1,130,770,453. Of this amount, $1,074,231,930 was expended in Pennsylvania.

Student expenditures:

— Total expenditures for non-capital goods and services made by full-time students (exclusive of tuition and institution-provided room and board and fees) were $386,859,098. Of this amount, $367,516,143 was expended in Pennsylvania.

Direct support employees:

— Total expenditures for individuals employed in jobs directly related to the support of higher education in Pennsylvania were $4,704,228. Of this amount, $4,469,016 was expended in Pennsylvania.

Total expenditures:

— Total expenditures made in fiscal year 1979-80 in Pennsylvania by institutions of higher education, their employees and students, and by those employed in jobs directly related to higher education were $2,260,666,592. To account for subsequent respending of this amount in Pennsylvania, the multiplier (1.69) was applied. The total of higher education related expenditures at Pennsylvania businesses was $3,820,526,540.

This represents an amount equivalent to three percent of total retail, wholesale and service industry sales in Pennsylvania.

The expenditure total is an understatement of the actual total impact for the following reason. Only expenditures made by resident employees and full-time students were used in the calculations. No reliable method could be developed to calculate total expenditures made by visitors to institutions of higher education. Results obtained from the case study institutions indicated that the total amount expended by visitors would be in excess of $100 million.

Impact of the institution as an employer

Institutional employment:

— Institutions of higher education employ a total of 101,973 persons. Total payroll for these employees was $1,467,541,905.

Direct support employees:

— The total number of persons employed in jobs directly related to the support of institutions of higher education was 583. Total payroll for these employees was $5,836,366.

Multiplier effects on Pennsylvania employment and income:

— The total number of additional employees in Pennsylvania as a result of higher education-related expenditures was calculated by determining sales-per-employee ratios for selected Pennsylvania industries and dividing and appropriate ratio into the total expenditures made by the institutions and into the remainder of the total institution-related expenditures. It was estimated that 74,876 additional jobs in Pennsylvania were attributable to total institution-related expenditures.

Total higher education-related employment:

— The total number of persons who were employed in jobs attributable to higher education was 177,432. This represents an amount equal to 3.6 percent of total employment in Pennsylvania.

Total higher education-related payroll:

— The total payroll related to higher education was $2,446,317, 015. This amount represents 3.1 percent of total non-agricultural labor and proprietor's income in Pennsylvania. In addition, to compare with other major employment sectors, payrolls attributable to higher education represent an amount equivalent to 9.3 percent of total labor and proprietor's income for Pennsylvania's manufacturers, 18.7 percent of total labor and proprietor's income for Pennsylvania's service industries and 20.5 percent of total labor and proprietor's income for Pennsylvania's retail and wholesale trade industries.

Impact of the institution as an investor

— Total deposits in Pennsylvania financial institutions by the institutions, their full-time employees and students and by related businesses (in proportion to institution-related expenditures) was $1,139,815,738. This creates an aggregate potential for credit base expansion in the amount of $1,005,287,849.

— Total institutions of higher education-related deposits in Pennsylvania represents 1.4 percent of total deposits in Pennsylvania financial institutions (as of 6/30/80).

Impact of the institution as a property owner

— Institutions of higher education own land, buildings and equipment with a total book value (as of 6/30/80) of $4,277,051,972.

— The total market value (as of 6/30/80) of endowments for all institutions of higher education in Pennsylvania is $1,039,985,527.

— A total of $750,898,380 in real property and $1,635,185,359 in inventory owned by businesses in Pennsylvania exists as a result of spending related to higher education.

— Total real property owned by institutions of higher education in Pennsylvania (as of 6/30/80) was valued at an amount equal to 7.3 percent of the total market value of taxable property in Pennsylvania (as of 12/31/80).

Other impacts of institutions of higher education

— Institutions of higher education received 27.5 percent of their total revenues from out-of-state sources in fiscal 1979-80. The total was $937,098,994.

— Institutions of higher education spent 14.6 percent of their total expenditures out-of-state in fiscal 1979-80. These totaled $463,656,693.

— Total out-of-state revenues exceeded total out-of-state expenditures by $473,442,301 and represented a net gain to Pennsylvania's economy. Put in other terms, Pennsylvania's institutions of higher education bring in $2.02 for every dollar spent outside of Pennsylvania.

— Total spending (for all purposes) attributable to higher education in Pennsylvania in fiscal 1979-80 represents a return of $1.70 for every dollar "invested" (from Pennsylvania sources) in these institutions in the same period.

— Institutions of higher education paid over $3,250,000 in non-payroll taxes and nearly $1,130,000 in fees to various governmental entities in fiscal 1979-80.

— Institutions of higher education provide various services that directly benefit business, agriculture and government. These services are often dependent upon the unique talent, expertise and experience of the professional staffs and the specialized facilities of the institutions.

— While not necessarily being the direct beneficiaries of services provided by institutions, society in general does benefit through the enhanced knowledge and understanding of technical, medical, social and cultural subjects.

— The types of services provided by the institutions directly benefiting business, agriculture and government basically can be categorized as: conferences and seminars, professional staff advising, continuing education programs, testing, technical consulting and formal research activities. The total expenditure by institutions in providing these services exceeds $150 million.

— Institutions of higher education made capital expenditures (in and outside Pennsylvania) in excess of $240 million in fiscal 1979-80. Of this amount, over $152 million was spent on acquisitions or new construction or renovations of land and buildings and over $88 million was spent for new equipment.

— Total capital expenditures made in Pennsylvania in 1979-80 by institutions of higher education was estimated to be $212,252,142. By applying the same multiplier used to calculate total non-capital expenditures, the total impact of capital expenditures would be $358,706,120.

— Institutions of higher education have varying impacts on the regions of Pennsylvania. These impacts are a function of the strength of the economic base of the region and the number and sizes of the institutions located in the region.

— The greatest impact of institution-related expenditures and payroll was on the collective non-SMSA region of Pennsylvania. The greatest impact of institution-related employment was in the Philadelphia SMSA.

— The attributable expenditures, employment and payrolls of all publicly supported institutions (state-owned, state-related and community colleges) and of all privately-supported institutions (private and state-aided), contribute approximately equal amounts to the total impact on business volume, employment and labor and proprietor's income in Pennsylvania.

The importance and value of higher education to Pennsylvania's economy and quality of life is of great significance. While functioning as operating entities the analyses show the institutions play major roles as employers, consumers, investors and property owners. In addition are the far-ranging and less measurable impacts of higher education that result from the advances in technical, medical, cultural and social fields of knowledge that improve and enhance, both directly and indirectly, the lives of every resident of Pennsylvania.

Some Future Implications

The aggregate short-range impacts upon Pennsylvania's economy of its institutions of higher education are shown by this study to be varied and significant — possibly more so than has been generally recognized.

If Pennsylvania's colleges and universities have bestowed favors upon its economy, the favors have not always been returned. This has been particularly evident in recent years, when combined effects of inflated costs, exaggerated interest rates and recurring recessions have multiplied the difficulties of balancing academic budgets.

Whether or not the availability of higher education facilities in Pennsylvania at present or expanded levels of adequacy will be assured will be influenced by both economic and demographic developments.

Predictions in the 1980's of deterioration of Pennsylvania's traditional quantity or quality of higher education capabilities present a multiple threat to the economic welfare of the state. One threat is to the continued contribution to the economy rendered by the colleges and universities as economic operating enterprises, the importance of which is revealed by this study. Also in jeopardy are the continued provision of direct technical and managerial services to business and industry, and the primary economic role of the higher education institutions as sources of trained manpower and leadership.

Avoiding this threat is a shared responsibility. Those who govern and manage the colleges and universities must gear their output and programs to meet changing demands of the economy. Those responsible for providing the necessary financial support to assure sustained existence and growth of Pennsylvania's facilities for higher education must be kept aware of the economic stakes involved. Doing so is a major purpose of this study.

I. HIGHER EDUCATION: STATUS AND TRENDS

Pennsylvania's history offers ample evidence of the deep and lasting commitment of its citizens to provide for its youth the benefits of a thorough system of education extending to all who need and seek it, from the most elementary to the most advanced levels of learning experience.

Even before Thaddeus Stevens conceived the institution of free public basic education, Benjamin Franklin had pioneered in the development of higher education with the establishment of the University of Pennsylvania. From these beginnings, institutions of higher education have multiplied over more than two centuries to provide in Pennsylvania an extensive and prestigious structure of colleges and universities. More than 190 institutions of all kinds and sizes to be found throughout the state offer an impressive array of general, technical and professional programs and curriculums.

While differing widely in their sources of support — public and private — in their educational philosophies and approaches and in their course offerings, Pennsylvania's institutions of higher education in the aggregate have achieved an enviable nationwide reputation for educational excellence and opportunity, available both to residents and non-residents of the Commonwealth.

This reputation has not been accomplished without unique problems and difficulties confronting the colleges and universities, individually and collectively. Their common problems lie in establishing and maintaining their respective roles in the educational process, adjusting their offerings to meet changing economic and social conditions and circumstances, preserving high standards of quality and achievement and assuring adequate financial support under changing and unpredictable economic conditions.

Numbers and Types of Institutions

Currently, higher education in Pennsylvania is provided by a complex network of institutions which may be categorized into nine types: state colleges and university; state-related universities; community colleges; private state-aided institutions; private colleges and universities; theological seminars; private junior colleges; proprietary schools; and the state school of technology. Institutions within each category make unique contributions to the economies of the areas in which they are located, and together, to the economy of Pennsylvania as a whole. To fully comprehend their economic roles, it is useful to understand the potential impact of the various types of institutions as measured by their numbers, enrollments, finances and professional staffs.

As of 1979 there were 197 institutions of higher education in Pennsylvania. Within this total, the breakdown by institutional category was as follows:

State colleges and university	14
State-related universities	4
Community colleges	14
Private, state-aided colleges and universities	12
Private colleges and universities	81
Theological seminaries	14
Private junior colleges	10
Proprietary schools and state school of technology	48
TOTAL	197

The totals have shown some fluctuation over the last decade, ranging from 149 in 1970 to 197 in 1979. Most of the fluctuation occurred in the number of private colleges and proprietary schools.

Of the 197 institutions of higher education in Pennsylvania, 109 offer upper-division undergraduate curriculum, 65 offer graduate programs and 33 offer programs leading to first-professional degrees.

Enrollments

Total enrollments in institutions of higher education in the state, shown in Exhibit 1, grew 21 percent over the decade of 1970-79 to almost 500,000 students. Most of the growth occurred between the years of 1973 and 1976.

EXHIBIT 1

Fall Enrollments in Pennsylvania Institutions of Higher Education — 1979

	1979	Percent of Total	Percent of Change 1970-79
All institutions	498,173	100%	21%
Total public	282,243	56.7%	20.9%
Total private	199,407	40.0%	12.2%
Proprietary schools and State School of Technology	16,523	3.3%	184.3%[1]

Source: Table I, Appendix.

Among the public institutions, enrollments grew the fastest in the community colleges (with part-time exceeding full-time enrollments since 1976). Enrollments in the state-related universities reached their peak during the decade in 1975, but they still account for the largest portion of enrollments in public institutions.

Among the private institutions of higher education (excluding theological seminaries) enrollments grew the fastest at the private, state-aided institutions.

Enrollments in proprietary schools far outpaced the growth in other types of institutions.

The median size of institutions within each category is

[1] Since 1971. State School of Technology was established as such in 1977.

presented in Exhibit 2. The median size of the state-related universities was the largest for any type of institution in the Commonwealth, and greatly exceeded the median size of the second largest category, the state colleges.

EXHIBIT 2

Median Size of Pennsylvania Institutions by Category — 1978

Category	Median Size of Enrollments	Category	Median Size of Enrollments
State Colleges	5,713	Private Colleges and Universities	1,179
State-Related	34,005	Junior Colleges	419
Community Colleges	3,744	Theological Seminaries	99
Private, State-Aided Universities	1,647	Proprietary Schools	193

Source: Pennsylvania Department of Education, Bureau of Planning and Education Statistics, *Summer and Fall College Enrollments in Pennsylvania 1978,* 1979.

Total enrollments are projected by the Pennsylvania Department of Education to decline by almost 15 percent over the decade of 1981-90, shown in Exhibit 3, to a level of 444,700, roughly the size of total enrollments in 1973. Such figures project total enrollments during the decade to be at their highest point in 1981 declining each year thereafter. Enrollments are projected to increase only at the community colleges, peaking in 1988.

EXHIBIT 3

Projected Fall Enrollments in Pennsylvania Institutions of Higher Education, by Institutional Category — 1981 and 1990

	1981	Percent of Total	1990	Percent of Total	Percent of Change 1981-1990
All institutions	521,600	100%	444,700	100%	-14.7%
State colleges and university	79,600	15.3%	64,000	14.4%	-19.6%
State-related	133,500	25.6%	109,000	24.5%	-18.4%
Community Colleges	84,000	16.1%	98,400	22.1%	17.1%
Private institutions	206,900	39.7%	161,000	36.2%	-22.2%
Proprietary schools and State School of Technology	17,600	3.4%	12,300	2.8%	-30.1%

Source: Pennsylvania Department of Education, Bureau of Planning and Education Statistics, *Selected Education Statistics for Pennsylvania to 1990-91: Projections,* 1981.

The expected decline in enrollments in higher education can be traced to the projections for the coming decade of both the numbers of high school graduates and the percentage of those who will continue their formal education. As shown in Exhibit 4, the number of high school graduates and the percentage continuing formal study declined between 1971 and 1980, ending the decade at lower levels than in 1971. Exhibit 5 shows that such declines are projected to continue at least through 1991, with a reduction of 30.2 percent in the number of potential Pennsylvania first-year enrollees.

EXHIBIT 4

Number of Pennsylvania High School Graduates Continuing Formal Education 1971, 1976 and 1980

	1971	1976	1980	Percent of Change 1971-80
High School Graduates	182,690	190,093	170,646	- 6.6%
Continuing formal education	99,840	92,213	87,816	-12.0%
% Continuing formal education	54.7%	48.5%	51.5%	

EXHIBIT 5

Projections in the Number of Pennsylvania High School Graduates Continuing Formal Education — 1981, 1985 and 1991

	1981	1985	1991	Percent of Change 1981-91
High School Graduates	168,300	144,100	117,400	-30.2%
Continuing formal education	86,700	73,000	58,900	-32.1%
% Continuing formal education	51.5%	50.7%	50.2%	

Source: (For Exhibits 4 and 5) Pennsylvania Department of Education, Bureau of Planning and Education Statistics, *Selected Education Statistics for Pennsylvania to 1990-91: Projections,* 1981.

Degrees Conferred

Reflecting the growth of higher education in the state over the last decade, the number of degrees awarded by such institutions grew by 18.9 percent between 1971 and 1980, as shown in Exhibit 6. The number of associate degrees awarded increased the most, reflecting the growth of community college enrollments.

By programs having extraordinary relevance to the State's economy, in 1979 there were 1,053 degrees granted in Agriculture and Natural Resources, 13,349 degrees in Business and Management, 5,046 Engineering degrees and 3,779 first-professional degrees. The remaining 50,324 degrees were granted in various other programs, less directly related to the economy. (Associate degrees granted are not included in these numbers.)

For the coming decade, the number of degrees which will be awarded is projected to decline, paralleling the expected decline in overall enrollments. The number of degrees projected to be awarded, shown in Exhibit 7, is expected to drop by 11.0 percent by 1991.

EXHIBIT 6

Number of Degrees Granted by Pennsylvania Institutions of Higher Education — 1971, 1975 and 1980

	1971	1975	1980	Percent of Change 1971-80
Total	76,465	90,158	90,905	18.9%
Associate	10,025	14,542	17,107	70.6%
Bachelor's	50,068	55,689	55,121	10.1%
First-professional	2,387	3,327	3,762	57.6%
Master's	12,346	14,827	13,246	7.3%
Doctor's	1,639	1,773	1,669	1.8%

EXHIBIT 7

Projections in the Number of Degrees Granted by Pennsylvania Institutions of Higher Education — 1981, 1985 and 1991

	1981	1985	1991	Percent of Change 1981-91
Total	92,400	91,400	82,200	-11.0%
Associate	17,600	17,200	15,500	-11.9%
Bachelor's	55,800	55,400	49,800	-10.8%
First-professional	3,800	3,800	3,400	-10.5%
Master's	13,500	13,300	12,000	-11.1%
Doctor's	1,700	1,700	1,500	-11.8%

Source: (For Exhibits 6 and 7) Pennsylvania Department of Education, Bureau of Planning and Education Statistics, *Selected Education Statistics for Pennsylvania to 1990-91: Projections,* 1981.

Current-Funds Revenues

Total current-funds revenues of all institutions of higher education in Pennsylvania grew by nearly 140 percent between 1970 and 1979, to $2.8 billion, as shown in Exhibit 8. Revenues of public institutions grew at a rate slightly less than that of the total. Revenues of the community colleges, reflecting their rapid growth during the 1970's, grew the fastest (excluding the proprietary schools): 233.6 percent. The next fastest growth in revenues occurred at the private state-aided colleges and universities: 189.3 percent.

EXHIBIT 8

Total Current-Funds Revenues of Pennsylvania Institutions of Higher Education — By Class of Institution 1979 Compared with 1970 ($ Millions)

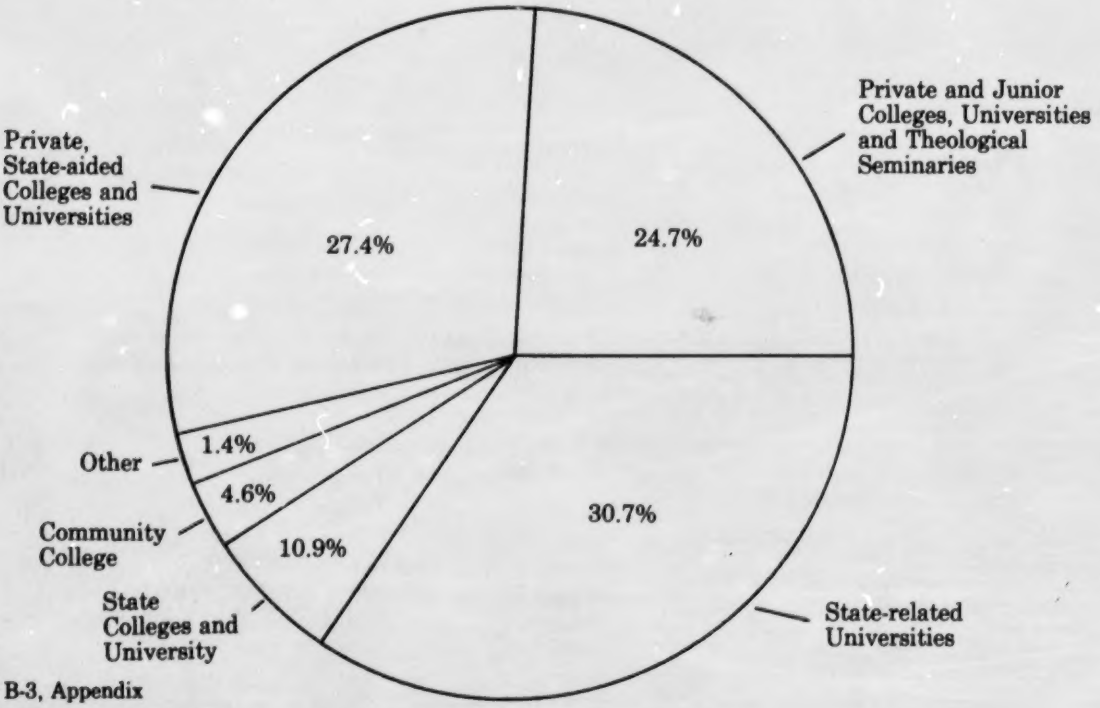
	1979	Percent of Total	Percent of Change 1970-79
All institutions	$2,801.6	100%	139.9%
Total public	$1,294.7	46.2%	134.0%
Total private	$1,468.4	52.4%	139.0%
Proprietary schools and State School of Technology	$ 38.4	1.4%	386.1%[2]

Source: Table B-3, Appendix

Exhibit 9 illustrates how revenues are shared among the several institutional categories. The revenues of the private colleges and universities in 1979 comprised 52.4 percent of the revenues of all institutions of higher education in the state; the revenues of the community colleges and the state-owned and state-related colleges and universities totaled 46.2 percent.

EXHIBIT 9

Pennsylvania Colleges and Universities Share of Total Current-Funds Revenues by Institutional Category 1979



Source: Table B-3, Appendix

[2] State School of Technology was established as such in 1977. Base year for all other schools is 1971.

Exhibit 10 presents a breakdown of the revenues of all institutions by source. Tuition and fees, and revenues from government sources each supply about the same percentage of total revenues: nearly one-third. Tuition and fees have been growing faster since 1970 when government money supplied 36.6 percent of all revenues and tuition and fees 30 percent. Revenues from the operation of hospitals, relevant to only a handful of institutions, grew the fastest between 1970 and 1979, and supplied a little more than one-seventh of all revenues in 1979.

EXHIBIT 10

Current-Funds Revenues, by Source
All Pennsylvania Institutions of Higher Education
1979 Compared with 1970
($ Millions)

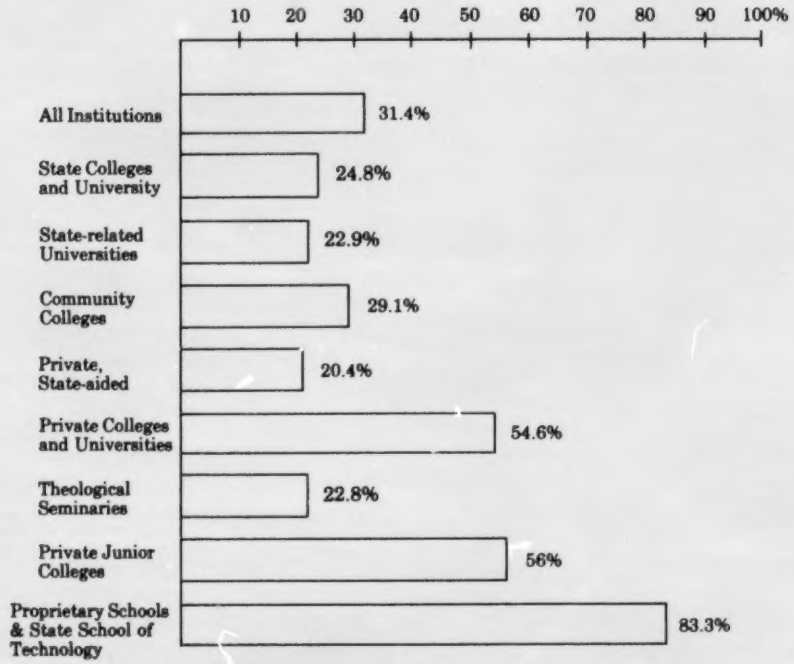
	1979	Percent of Total	Percent of Change 1970-79
Total Revenues	$2,801.6	100%	139.9%
Tuition and fees	$878.5	31.4%	150.1%
Government appropriations, grants and contracts	$880.5	31.4%	105.7%
a. federal	$277.1	9.9%	92.2%
b. state and local	$603.4	21.5%	112.5%
Endowment income	$ 70.0	2.5%	77.2%
Private gifts	$117.1	4.0%	216.5%
Hospitals	$406.9	14.5%	487.2%
Other	$448.6	16.0%	85.0%

Source: Table B-5, Appendix

Exhibit 11 illustrates the relative contribution tuition and fees made to total revenues within each institutional category in 1979. As expected, tuition and fees constituted a smaller percentage of total revenues at the colleges and universities that received state and/or local government money than those which did not.

EXHIBIT 11

Pennsylvania Colleges and Universities
Tuition and Fees as a Percentage of Total Current-Funds Revenues
Within Each Institutional Category
1979

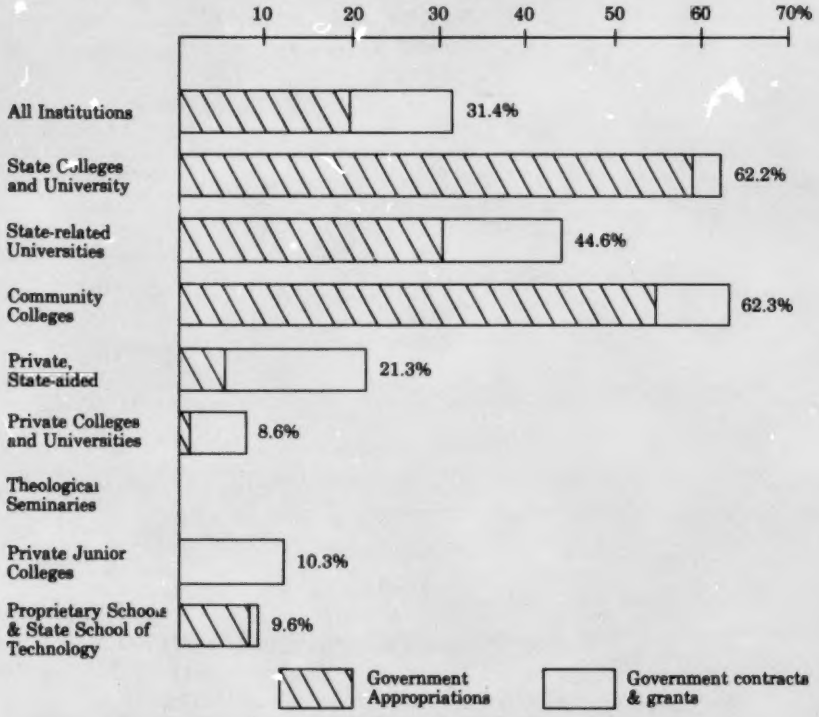


Source: Table B-7, Appendix

Exhibit 12 illustrates the percentages of total revenues in 1977 which came from government funds: federal, state and local. The money came in the form of appropriations, grants and contracts.

EXHIBIT 12

Pennsylvania Colleges and Universities
Government Receipts as a Percentage of Total Current-Funds Revenues, by Institutional Category
1979



Source: Table B-7, Appendix

Current-Funds Expenditures

The current-funds expenditures of institutions of higher education, shown in Exhibit 13, grew during the 1970's by 135 percent to $2.7 billion, a figure slightly below the rate for total revenues. Expenditures grew faster among the public institutions than the private, while the reverse was true for revenues.

Excluding the proprietary schools, the expenditures of the community colleges had the greatest rate of growth of any institutional category: almost 249 percent.

The distribution of total expenditures among the various institutional categories for 1979, displayed in Exhibit 14, mirrors the allocations of revenues. The expenditures of the private colleges and universities comprised 52.1 percent of total expenditures; expenditures of community colleges and state-owned or state-related colleges and universities totaled 46.6 percent.

EXHIBIT 13

Total Current-Funds Expenditures of Pennsylvania Institutions of Higher Education — By Class of Institution
1979 Compared With 1970
($ Millions)

	1979	Percent of Total	Percent of Change 1970-79
All institutions	$2,741.0	100%	135.0%
Total public	$1,277.5	46.6%	134.0%
Total private	$1,429.2	52.1%	130.4%
Proprietary schools and State School of Technology	$34.3	1.3%	334.2%[1]

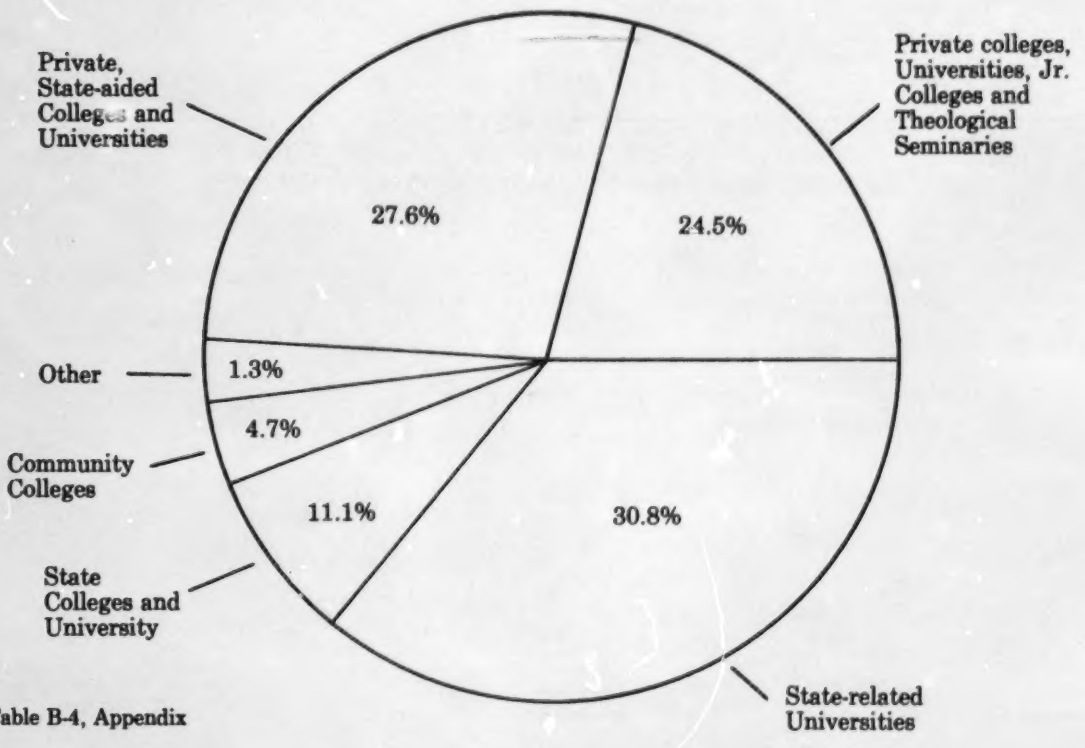
Source: Table B-4, Appendix

[1] Percent change since 1971. State School of Technology was established as such in 1977.

15

EXHIBIT 14

Pennsylvania Colleges and Universities
Share of Total Current-Funds Expenditures by Institutional Category
1979



Source: Table B-4, Appendix

Exhibit 15 presents a breakdown of expenditures by purpose of all institutions. Although expenditures for instruction remained the single largest category, expenditures for operation and maintenance of plant and for auxiliary enterprises grew faster, exceeded only by expenditures for hospitals and the category of other expenditures (public and student services, educational and general mandatory transfers, and independent operations.)

EXHIBIT 15

Current-Funds Expenditures, by Purpose
All Pennsylvania Institutions of Higher Education
1979 Compared With 1970
($ Million)

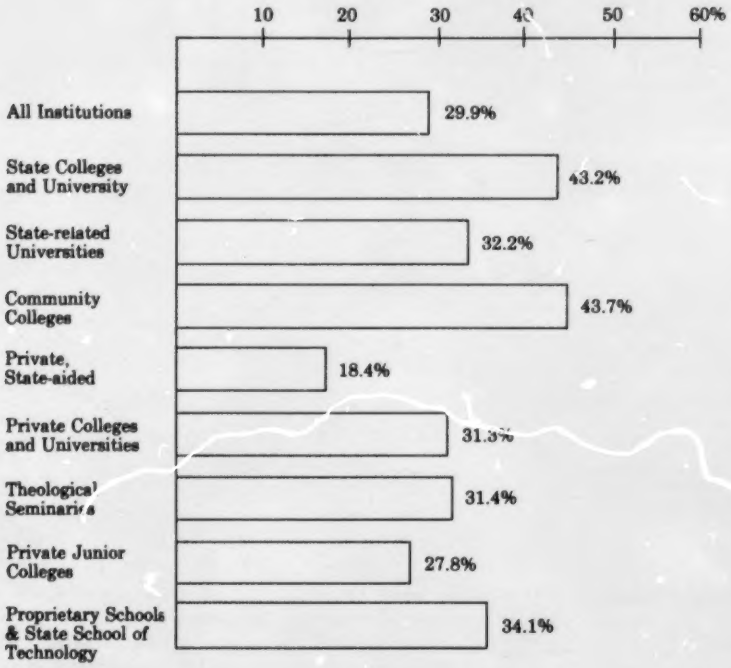
	1979	Percent of Total	Percent of Change 1970-79
Total Expenditures	$2,741.0	100%	135%
Instruction	$820.5	29.9%	108.6%
Operation and Maintenance of Plant	$235.6	8.6%	134.7%
Research	$190.2	6.9%	65.7%
Hospitals	$406.9	14.8%	469.1%
Scholarships and Fellowships	$107.5	3.9%	55.8%
Academic and Institutional Support	$437.3	16.0%	108.5%
Auxiliary Enterprises	$302.8	11.0%	113.2%
Other	$240.1	8.8%	266%

Source: Table B-6, Appendix

Exhibit 16 illustrates the portions of total expenditures composed of instruction expenses by the various institutional categories in 1979. While there was not much variation in the percentages, the private state-aided institutions spent a lesser portion of their total expenditures on instruction than did institutions in other categories. This can be explained by the relatively high portion of total expenditures by this type of institution for hospitals, almost 40 percent, and research, 10 percent. The state-related universities also spent significant amounts of money on hospitals and research, about 13 percent and 10 percent respectively, but much less than the private state-aided institutions.

EXHIBIT 16

Pennsylvania Colleges and Universities Instruction Expenditures as a Percentage of Total Current-Funds Expenditure, by Institutional Category 1979



Source: Table B-7, Appendix

Faculty

As of 1979, full-time instructional faculty numbered 20,196 at the state's institutions of higher education (Exhibit 17). This was a 16.1 percent increase over 1970, compared to an overall growth in enrollments of 21 percent.

EXHIBIT 17

Number of Full-Time Instructional Faculty, by Type of Institution — 1979

	1979	Percent of Total	Percent of Change 1970-79
All institutions	20,196	100%	16.1%
State colleges & university	4,203	20.8%	20.3%
State-related universities	5,416	26.8%	19.1%
Community colleges	1,814	9.0%	43.7%
Private, state-aided	1,643	8.1%	14.0%
Private colleges & universities	6,283	31.1%	-
Theological seminaries	113	0.6%	-19.3%
Private junior colleges	207	0.1%	- 8.0%
Proprietary schools and State School of Technology	517	2.6%	120%

Source: Table B-9, Appendix

Comparisons with Other States

For comparison with Pennsylvania, 10 relatively large or contiguous states were chosen, as well as national averages, to place higher education in Pennsylvania in a national context. The states chosen were: California, Illinois, Indiana, Massachusetts, Michigan, New Jersey, New York, North Carolina, Ohio and West Virginia.

Among the group of 11 states, and the nation as a whole, Pennsylvania in 1978 had the third largest number of institutions and branches of higher education. With some 5.4 percent of the total U.S. population, Pennsylvania had 5.8 percent of the nation's colleges and universities.

Enrollments in Pennsylvania institutions totaled 4.2 percent of total U.S. enrollments, and ranked Pennsylvania fifth among the 11 states. Over the period of 1971-77, enrollments in Pennsylvania grew by the second smallest percentage among the 11 states, and less than half the percentage for the U.S. total.

There was a greater number of private institutions than public in Pennsylvania in 1978. In fact, among the 11 states, the Commonwealth's ratio of the number of private to public institutions was third highest: 66 percent private and 34 percent public. On a per capita basis, Pennsylvania had a smaller number of public institutions per 1,000 population than the national average, and a greater number of private — almost one and one-half times as many.

Despite the relatively large number of private institutions in Pennsylvania, enrollments in public institutions exceeded private enrollments in 1977. However, the percentage of total enrollments recorded in public institutions in Pennsylvania was below the U.S. average, and was the second smallest percentage among the 11 states. On the other hand, enrollments in the Commonwealth's private institutions as a percentage of total enrollments were almost twice the U.S. average and the third largest among the 11 states. But a shift is occurring. Between the years 1971-77, public enrollments in Pennsylvania grew at slightly more than half the U.S. rate, while private enrollments grew only about one-third as fast.

The migration rates for out-of-state students enrolling in both the Commonwealth's public and private institutions were below the U.S. average in 1976. At public institutions the migration rates for both first-time and all students were about half the U.S. average. Private institutions fared a little better, falling only slightly below the national averages for both categories.

The figure for enrollments per 1,000 persons in the 18-24 age bracket in Pennsylvania was well below the national average, with a participation rate of about 33 percent versus almost 40 percent nationally. Among the 11 states, Pennsylvania had the third lowest figure for this measurement.

The breakdown of current-funds revenues and expenditures between public and private institutions in Pennsylvania is dissimilar from the same breakdown of the U.S. as a whole and the 10 states in that private institutions in Pennsylvania predominate public institutions in these measures while in most of the other states the reverse is true.

Revenues of all institutions in Pennsylvania had growth rates approximating the national rate between the years 1971-77: 82 percent. The revenues of public institutions in Pennsylvania grew at 86.5 percent, slightly below the national rate for all public institutions while the revenues of private institutions grew by almost 77 percent, faster than the national rate for private institutions.

Tuition and fees supplied 30 percent of total revenues in Pennsylvania, compared to 20.8 percent nationally. Among the 11 states, Pennsylvania was ranked third highest in the portion of total revenues supplied by tuition and fees.

Partially compensating for the relatively higher income from tuition and fees was a lower-than-average yield in Pennsylvania of governmental subsidies and grants, which produced 34 percent of total revenues compared with a national average of almost 48 percent.

The current-funds expenditures of institutions of higher education in Pennsylvania grew by 80.3 percent between 1971-77, slightly below the national rate. As was true of revenues, the expenditures of public institutions in Pennsylvania increased by less than the national rate for public institutions (85.1 percent versus 90.8 percent) while expenditures of private institutions grew faster than the similar national rate (75.8 percent versus 67.1 percent).

Educational and general expenditures comprised the largest portion of total expenditures. In Pennsylvania this amounted to 74 percent of total, and for the U.S. as a whole, almost 78 percent.

For a more detailed comparison of Pennsylvania and other states, see Appendix C.

Conclusion

While the decade of the 1970's brought generally rapid growth divided among the several types of institutions of higher education in Pennsylvania, the 1980's are expected to bring slower growth, and in most cases, actual declines in enrollments and numbers of graduates as the Pennsylvania pool of potential students shrinks. The expansion of the 1970's appears to be over for the foreseeable future.

The community colleges, however, are expected to continue to grow until the latter 1980's. It is the only institutional category of higher education in Pennsylvania which is expected to have a greater number of enrollments in 1990 than in 1981, bolstered by part-time enrollments.

In terms of enrollment, the community colleges were equal in size to the state-owned colleges and university in 1979, and are expected to be larger in the years thereafter. However, the revenues and expenditures of the community colleges are less than half that of the state-owned colleges and university. (See Exhibits 9 and 14)

All institutions of higher education in Pennsylvania will find themselves increasingly competing for a dwindling supply of potential students. In addition, the traditional types of colleges and universities may find themselves competing with the newer and growing number of community colleges as alternatives to a four-year education become more attractive in the future economy.

Current-funds revenues of all Pennsylvania institutions of higher education totaled $2.8 billion in 1979. Revenues of private institutions exceeded those of public institutions, despite a larger number of public enrollments. The revenues of the private institutions also grew at a faster rate between 1970-79 than those of public institutions. For all institutions as a whole, tuition and fees, and money from government sources each supplied roughly the same portion of total revenues: about one-third.

The current-funds expenditures of all Pennsylvania in-

stitutions totaled $2.7 billion in 1979. Expenditures of private institutions also exceeded those of public institutions. However, the growth of expenditures of public institutions during the last decade exceeded that of the private institutions. Instruction expenditures for all institutions of higher education constituted the largest single expenditure object and totaled nearly one-third of all expenditures.

In the future, the expenditures of institutions of higher education will be affected by projected declines in enrollments. While expenditures may actually decline in the future as a result, the decline will not be directly in proportion to the decline in enrollments, due to fixed overhead costs, the inflation rate and interest charges.

Full-time instructional faculty at Pennsylvania's institutions of higher education totaled 20,196 in 1979, and grew at a rate since 1970 that was less than the growth in enrollments over the same period. Full-time instructional faculty at the public and private institutions as a percentage of total mirrored roughly each type institution's share of total enrollments.

On a national perspective, enrollments in the Commonwealth's institutions have not grown as much as those in other states. Enrollments in public institutions, however, lagged less behind national rates than did private enrollments. Participation rates in higher education for people in Pennsylvania in the 18-24 age bracket, as measured against total enrollments, also are well below the national average.

Institutions in Pennsylvania did not appear to be too successful in attracting students from other states either, with a migration rate of students into the Commonwealth below the national average. This was especially true for public institutions whose in-migration rates were about 50 percent below the U.S. average.

The current-funds revenues of all institutions in Pennsylvania grew between 1971-77 by about the national rate. Tuition and fees supplied 30 percent of total revenues of Pennsylvania institutions, compared to 20.8 percent nationally; government subsidies and grants in Pennsylvania produced 34 percent of total revenues and almost 48 percent nationally.

Current-funds expenditures of institutions in Pennsylvania grew between 1971-77 by slightly below the national rate. The single largest portion of total expenditures in all the states was spent on educational and general expenditures. In Pennsylvania this amounted to 74 percent of total, and for the U.S. as a whole, almost 78 percent.

II. HIGHER EDUCATION: ITS ECONOMIC RELATIONSHIPS

The interaction of the economy and higher education has been in evidence since the early establishment of colleges and universities in the United States. In relatively recent years, there has been sharpened recognition and improved understanding of this interdependence.

The impacts are reciprocal in nature. Cyclical movements and technological changes in national and regional economies have a direct bearing upon the enrollments, curriculum demands and financial welfare of colleges and universities. In return, the institutions of higher education have a long-term impact by adding to the productive values of human resources. At the same time, they make significant short-term contributions to economic activity as operating enterprises and as providers of direct services to business and industry.

Clearly, the primary function of the college or university is in teaching and research; participating in the economic activity of the region or state is incidental to that prime function. Nevertheless, as a practical matter the presence of the institution represents an important economic as well as cultural asset to the community and state. These more immediate economic contributions are of substantial importance in maintaining workable relationships with the community and with public and private sources of financial support. Furthermore, this aspect of the economic role of the college or university is subject to reasonably accurate statistical measurement and relatively simplified presentation.

The results of economic impact studies often are suprising to the public and, indeed, to the academic community in terms of the prominent economic status of the college or university as an employer, consumer of goods and services, investor and property owner. Beyond the short and long-term role of the college or university in the economy is its function as a center for social and cultural advancement, which again defies quantitative evaluation.

The Transactions Flow

The immediate function of the institutions of higher education is to redirect the uses and locations of existing resources — whether these be family or student earnings and savings, corporate earnings, public funds or philanthropic assets — to supply the necessary elements of the instruction process. Resources, expended to acquire manpower, materials, services and plant assets — are introduced and re-circulated in the regional economy in the forms of wages, purchases of goods and services, contributions to government, acquisition of capital assets and accretions to net savings. The ultimate product of this channeling of pre-existing economic resources through the colleges and universities is an intangible "value added" representing additions to knowledge, creative capabilities, economic productivity and cultural enrichment of students.

Important and essential economic by-products which are ancillary to the instructional function are the commonly termed "auxiliary enterprises". They include facilities for housing and feeding students, health services and retail and service functions, all designed primarily to supply student instructional and personal needs. Included are hospitals, research laboratories,8athletic activities, hotels, conference centers, research laboratories and the like.

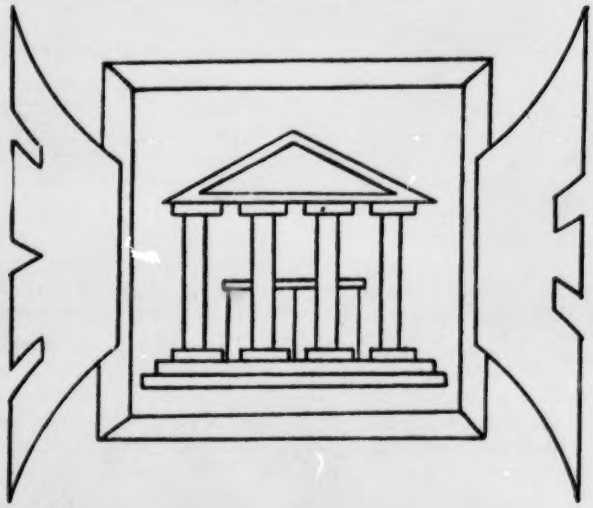
These operate in the economy in much the same manner as do private enterprises. They generate their own resources, in the form of income from sales of goods or services, a significant portion of which is imported into the community. These resources are converted to create jobs and payrolls and to purchase goods and services in the immediate area.

The nature and relative importance of in-flow and out-flow transactions, illustrating the typical posture of the college or university in the regional, state or national economies, are illustrated by the diagram presented as Exhibit 18.

EXHIBIT 18

Cash Flow System for Institutions of Higher Education

Revenues received by institutions of higher education are not absorbed by the institutions but, rather, are re-channeled back into the economy in the form of salaries and wages to employees, taxes and fees to government and payments for goods and services purchased from businesses.



State and Regional Impacts

The economic role of the college or university is enhanced as the geographic area within which that impact is to be measured is reduced.

Within the boundaries of a state, the higher education function serves not only to redirect the uses or applications of wealth and economic resources, but also to relocate their immediate application among regions. To the extent that funds flow into Pennsylvania from other states and from the federal government for support of students and the institutions they attend, new economic resources are introduced into the Pennsylvania economy which otherwise would not be present.

This inflow is offset by the transfer out of state of resources of students and their families, plus publicly subsidized loans and scholarships, expended elsewhere by Pennsylvania residents who attend colleges or universities in other states. The institutions of higher education in Pennsylvania spend part of their resources for purchases of goods and commodities in other states. By the same token, they receive alumni contributions, corporate contributions and philanthropic gifts, grants and endowments from sources outside Pennsylvania.

The complex interstate exchange of resources becomes even more complicated when the effort is made to measure the net economic impact of a college or university within a still smaller geographic region — its host community, or immediate "market area". Here, the net economic impact is enhanced, in that resources brought into the area by students and by state tax-supported subsidies and other forms of support for the institution, together with the net income imported into the area by auxiliary enterprises, can have a dramatic localized impact in jobs created, increased trade, enhanced property values, enlarged investments and credit bases and increased tax revenues. Whereas these economic benefits may tend to be neutralized when measured on a statewide basis, they can represent a sizeable contribution to the economic sustenance of a community. This is true particularly when any extraordinary portion of the local population is made up of college or university students, and when the normal economic base of the community is limited or depressed.

An important consideration in the measurement of the economic impacts of any enterprise, including a college or university, is the "multiplier effect" of the recycling or respending of its original expenditures within a given area. Each dollar of expenditure by the institution, its employees and its students for goods or services in the immediate area produces additional jobs, compensation for which is largely respent in the area, or in localized purchases of inventories and supplies by enterprises with which the university does business. The tracing of each dollar of expenditure through its complex train of transactions is difficult, and is made even more difficult when an attempt is made to measure the impacts of that flow within a restricted regional area. Nevertheless, the "multiplier effect" of the initial expenditures in the region attributable to the presence of a college or university is an essential factor to be considered in measuring economic impact.

In summary, it may be argued that, from a national perspective, colleges and universities serve largely to redirect earnings and savings through different channels than might otherwise occur, rather than to create tangible wealth. But, if their net impact is to be assessed within a limited geographic region — a state or a community — that impact is enhanced by the effect of transferring resources out of one geographic area and into another. It can be assumed safely that if existing institutions of higher education were not present in a community or state, a significant portion of their income would be routed to other communities or states by residents seeking post-secondary education available elsewhere. Thus, from a practical standpoint, it is a justifiable assumption that the collection and disbursement of funds by institutions of higher education, separately or collectively, result in a net increment to the economy of the state and to the respective host communities.

Relationships with Government

Many prior studies attempting to measure the economic impact of individual colleges or universities upon their regional economies have taken into account the relationships between the institution and local, or sometimes state, governments. These studies have endeavored to evaluate the flow of funds and intangible benefits from the institution to the local or state government, and to measure the reverse flow of funds from government to support services to the institution. Special attention has been given to the "negative" economic impact represented by the exemption of college or university-owned real property from local property and excise taxes.

Efforts have been made in some studies to measure the cost of services rendered by state or local governments to the faculty and other employees and students, against their tax or service fee contributions. The value of self-provided institutional services such as fire and police protection is also considered as an offset against tax exemptions.

Public funds, originating from federal, state and local levels of government flow directly into higher educational institutions and to their students in the form of operating subsidies and various forms of student aid. Certain direct services, primarily of a protective or utility nature, are provided largely by local governments to colleges or universities within their jurisdictions at a cost which would not be incurred were the institution not present.

Although the instructional properties of higher education institutions are ordinarily exempt from local real estate taxes, the institutions do pay taxes upon properties not qualified for exemption because they are not used exclusively for educational purposes. These include properties used by their auxiliary enterprises or activities. Somewhat more difficult to measure but nevertheless significant are the enhancements in property values, and consequent property and other tax receipts, attributable to the presence of the college or university.

By their presence, the auxiliary enterprises as employers generate property, income and excise tax revenues paid directly or through the enterprise as a collector to state and local governments and to the federal government. In the reverse direction, federal, state and local governments provide services not only to the college or university, but also to its auxiliary enterprises and their employees.

These interrelationships of government and higher education institutions are an acknowledged factor in evaluating the economic impact of the institution upon its community, state and nation. However, because the focus of this study is upon economic, rather than general community impacts, it has been determined that governmental

relationships are of incidental interest and warrant secondary treatment. One element of this relationship is accorded special importance — that being the general subsidization of higher education by governments at all levels, through direct support of the institution, aids to students and restricted or unrestricted special purpose research or other grants. This factor is discussed as an element of income available to colleges and universities.

Direct Services to Business

In addition to their roles as operating enterprises and instruction centers, many colleges or universities provide direct services and facilities to business designed to improve the quality of products and the efficiency with which they are provided. Included are talents and facilities for technical and administrative research, expert consultation related to products and production, manpower training skills and facilities, facilities and staff for seminars and conferences, and the services of skilled personnel on corporate boards and advisory committees. These services are available to manufacturing enterprises, financial institutions, agriculture and other categories of productive enterprise.

University and college laboratories and the technical expertise of their faculties and students are responsible for outstanding innovations in product development and production methods. There is a continuing exchange of skilled personnel between productive enterprises and colleges and universities as well as a flow of contract-related funds and contractual research services. Most industrial developers agree that the presence of advanced technical training and research facilities provided by colleges and universities is a major plus factor in attracting industries and jobs to a state or to a region, with the attendant benefits of increased employment and production.

In addition to providing candidates for recruitment by business and industry to meet their manpower needs, the colleges and universities provide a valuable resource for specialized training or retraining of the workforce, often especially designed to meet the needs of the community, the region or the state.

Like the "human investment" concept of economic contribution by higher education, the direct and unique services to satisfy the needs of a growing regional or state economy are difficult to measure in quantitative terms. In this study, the attempt is limited largely to describing and enumerating the services and facilities made available in Pennsylvania.

Pennsylvania's Economy

The directions and the status of Pennsylvania's economy are characteristic of the larger industrial states in the middle Atlantic and northeastern regions of the United States. Its economic base traditionally has been relatively capital-intensive, relying heavily upon manufacturing for large sectors of its capital investment and its employment. In recent years, employment has tended to shift from manufacturing to a growing number and activity level of service industries and enterprises. Business, mercantile trade and commercial and banking enterprises also are prominent contributors to Pennsylvania's economic base. Mining, which has declined in recent decades from its earlier position of importance, particularly in the northeast region of Pennsylvania, holds promise of a revival in the current and continuing energy crisis.

As a market for the products of its institutions of higher education, Pennsylvania's economy generates a continuing demand for advanced preparation and training in managerial and technical fields required in its basic industries, and for professional and technological capabilities to meet the needs of its growing service and research/development enterprises. While endeavoring to meet these demands, Pennsylvania's colleges and universities, at the same time, are significant participants in the economies of their communities and of the state.

Returns on Educational Investment

Not as readily measured in quantifiable terms but undoubtedly of greater ultimate economic value are the contributions of the colleges and universities offered in their primary function as teaching enterprises.

Although they are beyond the scope of this inquiry, some general observations concerning the human investment function and the broader societal contributions of higher education, are appropriate.

Economic researchers attempting to measure the rate of return on higher education investment have developed generally a three-stage process. First, the total costs of obtaining an education are determined. Second, an attempt is made to differentiate the earnings over a lifetime between persons who are college-educated and those without a college education. Third, present values for those future earnings are computed to show their worth upon completion of the educational process. This latter step is necessary to effect valid comparisons between the two categories studied.

The process requires making certain assumptions, including but not limited to future interest rates, economic growth, labor market participation and expected productive work-years.

Criticism of the process centers around the assumptions made together with the noneconomic benefits of higher education that are devalued or ignored altogether.

Costs of Higher Education

In determining the rate of return on human capital investment, costs of the investment must be ascertained. These costs fall necessarily on two segments — the person receiving the education and the society from which the person hails and to which the individual (hopefully) returns.

Personal. Just as there are two categories of general costs, there are likewise two classes of personal costs: direct expenses and foregone earnings.

Direct expenses are the most easily calculated. They consist of such items as (1) tuition and activity fees; (2) room and board; (3) textbooks and other learning-related supplies and fees; (4) transportation; and (5) out-of-pocket or miscellaneous fees.

Foregone earnings are an obvious expense to the student (and to society). This category of cost is affected by several variables including state of the economy (and hence the availability of jobs), marketable skills gained through high school graduation and/or other work experiences, and the motivation of the student to seek employment actively.

Societal. There are four major costs incurred by society in financing higher education.

First, there are the direct and indirect expenditures made by governments (national, state and local). These would include grants or subsidies made to educational in-

stitutions and to students, as well as the services provided to such recipients.

Second, society, for all intents and purposes, loses the productive contribution of the student during his or her college term. This is offset somewhat to the degree that the student is employed part-time during the school year, semester breaks or summers.

Third, society in general absorbs the tax losses incurred due both to the non-productivity of the student and to the tax-free status of the institution.

Fourth, society sacrifices the use elsewhere of the significant grants and gifts bestowed by the private sector. Endowments, scholarships or direct support for specialized activities are examples of such support.

Benefits of Higher Education

Computing benefits of higher education with any degree of accuracy is an inexact science and has been the subject of much controversy. This is especially so when economic benefit computation is attempted. There are those who feel such measurement is misleading given the expected nonpecuniary benefits that higher education is thought to provide as a matter of course.

Nonetheless, there are obvious benefits that inure both to society at large and to individuals.

Personal. In the personal realm, there are both tangible and non-tangible benefits that an individual may expect as a result of pursuing a higher education.

Tangibly, enhanced employability prospects, together with expected increased earnings over a working career are the likely benefits most students anticipate in deciding to pursue a college education. The anticipated earnings differential is an approximate measure of the individual's enhanced productivity and economic "value added".

Census data, as shown in Exhibit 19, tend to show a positive correlation between years of education received and median personal income.

EXHIBIT 19

Education of Household Head	Median Income 1970	1979
Less than 8 years	$4,301	$7,222
8 years	6,013	9,739
1-3 years high school	8,113	12,346
4 years high school	10,063	18,310
1-3 years college	11,280	20,366
4 years or more college	14,440	26,614

Source: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports,* Series P-60.

In fact, the differential (in median personal income) between four years high school and four years or more college increased slightly during the decade.

This is in contrast to some researchers who suggest that the earnings differential between college graduates and non-graduates may be narrowing (especially during the sluggish national economy of the mid to late 1970's). There are many others who feel such a narrowing was a temporary phenomenon. The latter group maintains that future long term economic growth will create a multitude of jobs which in turn will generate demand for college-trained workers.

Even in periods of economic downturn, college-trained workers are usually unemloyed less often and for shorter durations than non-graduates.

On an intangible basis, higher education pays even greater benefits although these are admittedly more difficult if not impossible to measure. For the most part there is agreement that a college graduate, having completed successfully a rigorous academic discipline, will (or should) have a broadened intellectual capacity as a result. Also, in addition to having experienced a general cultural enlightenment, a college graduate is expected to possess greater tolerance and/or acceptance of divergent viewpoints.

Perhaps the most noteworthy of the so-called intangible benefits is the enhanced leadership, inventive and proprietary capabilities of college graduates. Although many of the American entreprenurial and inventive giants of the past did not possess a formal higher education, it is more than likely that future technological and industrial demands, together with the satellite and attendant spinoffs, will require college-trained individuals to meet these needs.

Societal. All of the personal benefits enumerated in the preceding section obviouslv are available to all of society on a collective basis.

Perhaps the greatest benefit that accrues to society for its investment in higher education is the likely increase in productivity that is expected to occur over an individual's working career. That expectation is pervasive and accepted almost without exception and is reflected in broad public support of higher education. This support is manifested through direct public appropriations of tax revenues at all levels of government and through continuing private contributions.

Of course, increased productivity implies increased earnings which in turn translates into increased taxes levied by all governments on earnings, on consumption expenditures and on property ownership. With the variety of taxation systems in effect, it is almost a certainty that increased taxes paid over a lifetime will repay all or a significant part of society's investment.

Another important benefit to society is the lessened demand by the college-educated for "welfare-type" transfer payments. All things considered, college graduates are more likely to be active participants in the labor force and thus less likely to be drawing unemployment compensation benefits or other types of supplemental income assistance payments. Because college graduates occupy less hazardous occupations for the most part, workmen's compensation claims can also be expected to be less than for the non-college educated.

All the benefits to society are not solely economic. College graduates provide a pool of skilled and talented individuals for a variety of community tasks. For example, they perform a disproportionate part of all voluntary charitable work. In addition, college graduates are better informed on issues, more likely to register and vote and to participate actively in governmental affairs, public service and politics. Because of their training and experiences they are less likely to be influenced by prejudicial stereotypes and more likely to attempt rational and nonviolent solutions to individual and societal problems.

In summary, a largely rhetorical question is raised, i.e. does the value added to society, to the economy and to an individual by providing for and participating in higher education, exceed the costs incurred by each?

A quote may best answer this question. "First, the monetary returns from higher education alone are probably sufficient to offset all the costs. Second, the nonmonetary returns are several times as valuable as the monetary returns. And third, the total returns from higher education in all its aspects exceed the cost by several times. In short, the cumulative evidence leaves no doubt that American higher education is well worth what it costs." [1]

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[1] Howard R. Bowen, *Investment in Learning: The Individual and Social Value of Higher Education*. San Francisco: Jossey-Bass, 1978.

III. HIGHER EDUCATION: STATEWIDE ECONOMIC IMPACTS

Introduction

Institutions of higher education are usually considered to be among the prominent members of the community and state in which they are located. The economic aspects resulting from these memberships may not be so well known since they are subordinate to the primary mission of these institutions — providing post-secondary education and skills development. In fulfilling these economic roles, the institutions function as consumers of goods and services, employers, owners of property, investors and borrowers. The impact of these roles takes on an even greater significance when the data for all institutions are aggregated.

The methodology employed to measure the economic impact of higher education institutions first determined the amount of expenditures, number of employees and value of property within the service areas and in Pennsylvania. This information was obtained by questionnaire from the institutions. In addition, data developed from in-depth "case studies" conducted at several institutions provided a basis for developing personal expenditure patterns for employees, students and visitors. The above information was used to project totals or percentages of totals where total amounts were available from published sources. Next, the secondary impact on business volume and employment from the respending of the initial expenditure input was calculated. The potential for credit base expansion as a result of total institution-related deposits was also determined. Finally, these figures and amounts were compared with certain service area and statewide data and the economic interactions between them were analyzed.

The questionnaire was composed and sent to the 125 institutions comprising the study group. Of this number, 99 (80%) were completed and returned and served as the basis for much of the data. These 99 institutions accounted for 92 percent of full-time enrollment. The main purpose of the questionnaire was to obtain data detailing the sources of revenues and the location of expenditures for fiscal year 1979-80. A listing of those institutions returning the questionnaire and included in the data base is presented in the Appendix. A copy of the questionnaire instrument is presented in the Appendix.

The in-depth "case studies", using the same methodology as employed in the statewide study, were conducted to yield tangible evidence of the contributions to both the local and statewide economies. Results from these case studies provided personal expenditure patterns showing what portion of expenditures were made locally and what portion were made in Pennsylvania. These results were extended to calculate personal expenditure patterns for employees and students for all of the participating institutions in the statewide study. A summary of case study results is presented in a separate report.

Detail relating to the actual methods employed to calculate and analyze the statewide study data is presented in Appendix D.

While reviewing the results of this survey, the reader should be aware of the following general caveats:

1. Information on revenues and expenditures are presented for one year only. This may result in some data being a-typical for a particular institution, especially for large non-recurring cost items. It is expected that such deviations would be cancelled out due to the number of institutions providing information.

2. A single net total impact cannot be derived by adding the results of the analyses of the various economic roles of the institutions. The analyses of the impacts of items as diverse in nature as expenditures, savings, investments, employment and property ownership yield results that must be considered separately.

3. The revenue and expenditure figures presented aggregate transactions of various funds and do not distinguish between those that are restricted and unrestricted in potential use.

4. The results of analyses of aggregated information would not necessarily be suitable for use in an analysis of a single institution by interpolation.

5. While great effort was made to insure the accuracy of the data obtained, some of the analyses had to be accomplished using data estimated by the institutions.

Economic Impact of the Institution as a Consumer

The calculation of the economic impact of the institution as a consumer involves the interrelated impacts of several factors. These factors include purchases made in Pennsylvania directly by the institution and purchases made in Pennsylvania by faculty, staff and students. In addition, purchases made in Pennsylvania by individuals employed in jobs existing directly in support of higher education (such as state employees) are included. All figures are for fiscal year 1979-80.

Total purchases — institution	$814,449,503
Total purchases — faculty/staff	$1,074,231,930
Total purchases — direct support employees	$4,469,016
Total purchases — students	$367,516,143
TOTAL	$2,260,666,592

The total amount of these purchases made in Pennsylvania generate increased income to Pennsylvania businesses and henceforth to individuals in the form of wages, interest, rent and profit. The recipients of this income in turn respend it generating increased income to other businesses and individuals. The successive respending of an initial spending input is known as the multiplier effect. The multiplier calculated for the dollar value of purchases made in Pennsylvania is 1.69 [1]. Therefore, total institution-related purchases are:

$$\$2,260,666,592 \times 1.69 = \$3,820,526,540$$

This amount is equal to three percent of total retail, wholesale and service sales for Pennsylvania in 1980.

Expenditures made by visitors to institutions of higher education also contribute to the overall impact of higher education in Pennsylvania. Because the number of visitors and the average per visit expenditure for visitors are based on a mix of factors that is unique for each institution, it was not possible to project a reliable total for visitors' expenditures given the information available.

The following information was obtained from the questionnaire or from the case study reports received and is presented to provide a general scope to the potential impact of visitors. The total number of visitors for the academic year 1979-80 at institutions of higher education

[1] Computations based on: Charles D. Salley, *Georgia State University Spending Patterns and the Atlanta Economy*. Atlanta: Georgia State University, December 1976.

in Pennsylvania reported by those responding to the questionnaire was 4,970,117. The range of average per-visit expenditures reported by the case study institutions was a low of $5 and a high of $46.73.

Economic Impact of the Institution as an Employer

Institutions of higher education are a major employer in Pennsylvania. The total impact on employment consists of those individuals directly employed during fiscal year 1979-80 by institutions, those whose jobs are the result of institution-related purchases and those who work in jobs directly in support of higher education.

Total employed by institutions (excluding student employment)	101,973
In-state residents	96,652
Out-of-state residents	5,321

Employment in jobs directly related to the support of higher education in Pennsylvania consists mainly of individuals working for the Pennsylvania Department of Education, the Pennsylvania Higher Education Assistance Agency and the Higher Education Facilities Authority. It is recognized that many other governmental employees perform various tasks in support of higher education; however, because of the difficulty of separating these tasks, no attempt was made to quantify their efforts.

A total of 583 were employed in August, 1981, in jobs directly related to the support of higher education.

The number of employees attributable to institution-related purchases was calculated in two parts. First, the initial payroll generated by purchases made by the institutions was determined based on expenditure data reported by the institutions on the questionnaire and payroll-to-sales ratios for the various industries supplying goods and services to the institutions. This payroll amount was divided by the average salary for a non-agricultural worker in Pennsylvania during 1979 to yield a number of employees. Second, the total expenditures in Pennsylvania related to higher education was reduced by the value of purchases made directly by the institutions. The remaining amount was divided by the sales-per-employee ratio for service and retail trade in Pennsylvania to yield a number of employees.

The total number of employees attributable to institution-related expenditures was 12,348 + 62,528 = 74,876. The total payroll for these workers was found by multiplying it by the average non-agricultural salary for a worker in Pennsylvania in 1979.

The Economic Impact of the Institution as an Investor

Institutions of higher education make a significant contribution to the Pennsylvania economy through the "business" they generate for banks and savings institutions as depositors. In addition, faculty, staff and students are depositors in these same institutions. Businesses also maintain cash deposits. The amount of these deposits attributable to higher education was also included.

The economic impact of total deposits relating to higher education held in Pennsylvania banks and savings institutions was established as being the aggregate potential for credit base expansion. This was accomplished by multiplying the total deposit amount by one minus the minimum legal reserve requirement imposed on the lending institutions.

Total deposits (6/30/80)	$1,139,815,738
Total institution-related deposits as a percentage of total deposits in Pennsylvania banking and savings institutions (as of 6/30/80)	1.4%
Total potential credit base expansion	$1,005,287,849

The Economic Impact of the Institution as a Property Owner

Institutions of higher education own considerable amounts of both real and personal property. In addition, a portion of the property owned by businesses exists as a result of direct or induced spending by higher education sources.

Property owned by institutions (as of 6/30/80)	
Land, buildings and equip. (book value)	$4,277,051,972
Market value of endowments	1,039,985,527
Property owned by businesses (as of 6/30/80)	
Real property	750,898,380
Inventory	1,635,185,359
Total value of property	$7,703,121,238

The relative value of real property owned by or attributable to institutions of higher education in Pennsylvania can be measured by comparing it to the total market value of taxable real property in Pennsylvania.

Total real property owned by or attributable to higher education (end of fiscal year 1979-80) as a percent of total market value of taxable property in Pennsylvania (12/31/80) is 7.3 percent.

Comparative Employment Impacts

	Institution & Direct Support Employees	Total Attributable
Total employment	102,556	177,432
Percent of total Pa. employment	2.1%	3.6%
Total payroll	$1,473,378,271	$2,446,317,015
As a percent of total Pa. labor and proprietor's income for non-agricultural employment	1.9%	3.1%
As a percent of total Pa. labor and proprietor's income for manufacturing	5.6%	9.3%
As a percent of total Pa. labor and proprietor's income for service industries	11.3%	18.7%
As a percent of total Pa. labor and proprietor's income for retail and wholesale trade industries	12.3%	20.5%

An additional impact on property values attributable to higher education is the increase in values of properties in the areas immediately surrounding a campus. A lack of reliable data prevents any meaningful calculation of this impact; however, that the impact does exist must be noted.

Other Impacts

The previous analyses examined the economic impacts of institutions of higher education as they function in specific economic roles. Additional analyses of the data can be performed to yield insights as to other economic aspects of the institutions of higher education.

Balance of payments. In the course of a typical year, institutions of higher education receive funds from several types of sources. Students pay tuition and fees. Some institutions receive direct appropriations from governments. Grants, gifts and contracts are obtained from governments, individuals, corporations and foundations. Revenues are generated internally in the form of interest, dividends, royalties and rentals earned and through gains from the sale of investments. In addition, revenues are earned on sales or services rendered for educational activities and by auxiliary enterprises, hospitals, clinics and medical centers and independent operations.

Funds received are subsequently spent in the course of operating or expanding the institutions. The spending is in the form of payrolls, purchases of goods and services, payments of taxes and fees, and other purposes. These expenditures are made in both in-state and out-of-state locations.

By comparing the amount of funds received from out-of-state sources to the amount of expenditures made out-of-state a "balance of payments" for the operation of Pennsylvania's institutions of higher education can be developed. The data used in this analysis were obtained from the questionnaires.

This anaylsis only measures flows of funds into and out of the institutions. Calculation of a complete "balance of payments" for higher education would include such items as expenditures by Pennsylvania resident students attending out-of-state institutions and would exceed the scope of this study.

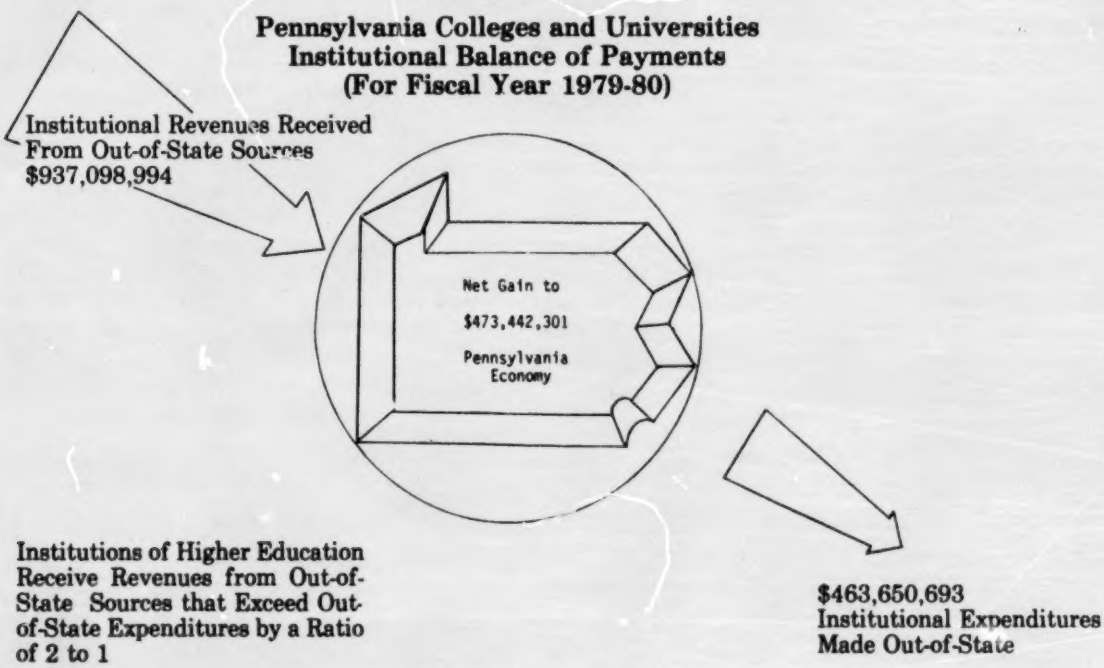
Total revenues from out-of-state sources were calculated to be 27.5 percent of total revenues and additions received by those institutions responding for fiscal year 1979-80. When multiplied by total revenues and additions for all institutions, as reported by the Pennsylvania Department of Education, total projected revenues from out-of-state sources are $937,098,994. This amount is an understatement because all gifts, grants and contracts from individuals, corporations and foundations are treated as being from in-state sources due to a general inability of most institutions to break down total receipts from these groups into in-state and out-of-state portions.

Expenditures made out-of-state in fiscal 1979-80 were reported in the responses to the questionnaire. Total expenditures made out-of-state were calculated to be 14.6 percent of total expenditures and deductions by those responding for fiscal year 1979-80. When multiplied by total expenditures and deductions for all institutions, as reported by the Pennsylvania Department of Education, total projected expenditures made out-of-state were $463,656,693.

Total revenues received by institutions of higher education from out-of-state sources exceed total expenditures made by those institutions outside of Pennsylvania and result in a net gain to the Pennsylvania economy of $473,442,301. Put in other terms, Pennsylvania's institutions of higher education bring in from other states or nations $2.02 for every dollar spent outside of Pennsylvania.

EXHIBIT 20

Pennsylvania Colleges and Universities
Institutional Balance of Payments
(For Fiscal Year 1979-80)


Institutional Revenues Received From Out-of-State Sources $937,098,994
Net Gain to $473,442,301 Pennsylvania Economy
Institutions of Higher Education Receive Revenues from Out-of-State Sources that Exceed Out-of-State Expenditures by a Ratio of 2 to 1
$463,650,693 Institutional Expenditures Made Out-of-State

Source: Institutional Questionnaire Responses

The following summarizes information based on data obtained from the institutional revenues and expenditures questionnaire and projected for all institutions.

Total revenues and additions	$3,407,632,707
Total revenues from out-of-state sources	$ 937,098,984 (27.5%)
Total expenditures and deductions	$3,175,730,775
Total expenditures made out-of-state	$ 463,656,693 (14.6%)
Ratio of out-of-state revenues to out-of-state expenditures	2.02:1

Student Aid Programs. An additional balance of payments was calculated for student financial aid programs (grants and guaranteed loans) financed by Pennsylvania and other states. This calculation compared the dollar value of grants and loans through the Pennsylvania Higher Education Assistance Agency received by Pennsylvania residents attending out-of-state institutions to the dollar value of grants and loans from agencies of other states used by out-of-state students attending Pennsylvania institutions. All figures are for 1979-80 [1].

The average grant awarded to Pennsylvania residents enrolled at out-of-state institutions was $505.68 while the average grant awarded by other states to their residents attending Pennsylvania institutions was $276.88. The ratio of the value of grants going out-of-state to grants coming in was 2.38 to 1. (This ratio is an overstatement due to the lack of data on grants coming into Pennsylvania from the states of Maryland and Washington).

The average loan amount for Pennsylvania residents enrolled at out-of-state institutions was $2,525. The average loan amount for residents of other states attending Pennsylvania institutions was $2,465. The ratio of the value of loans going out of the state to loans coming in was 1.12 to 1.

GRANTS:

Pennsylvania to Other States		Other States to Pennsylvania[2]	
No.	$ Value	No.	$ Value
12,996	$6,574,175	9,964	$2,758,820

LOANS:

Pennsylvania to Other States		Other States to Pennsylvania[3]	
No.	$ Value	No.	$ Value
30,508	$77,021,575	28,000	$69,000,000

Net Return on Investment. The institutions of higher education included in this study received a total of over $2.48 billion in revenues from sources in Pennsylvania during fiscal 1979-80. For the same period, total spending in Pennsylvania attributable to these institutions (including capital expenditures, debt service and the multiplier effects)[4] was calculated to be over $4.2 billion. This represents a return of $1.70 for every dollar "invested" in higher education institutions for fiscal year 1979-80.

Payment of Taxes and Fees. Although considered to be tax exempt, many institutions do pay taxes to governments (usually local governments). These include payments made for such things as property used for non-educational purposes and in lieu of taxes payments made for costs of services received by the institution. In addition, many institutions pay fees for services with direct user charges such as sewer, water and trash collection. When considering any implications of the amounts of taxes and fees paid it must be remembered that most institutions provide for themselves some of the same services (e.g. fire and police protection) which are provided to other residents of the communities by the local governments. Governments also gain a significant benefit from the additional tax revenues received as a result of enhanced taxable income of graduates.

Total non-payroll taxes and fees paid to governments and the number of institutions reporting such payments on the revenues and expenditures questionnaire are as follows:

	Taxes		Fees	
	$ Amount	No. Institutions	$ Amount	No. Institutions
Federal	747,242	3	110	2
Pennsylvania	527,821	28	141,307	10
Local	1,960,167	46	986,605	37
Other	16,221	3	1,787	3
TOTAL	3,251,451		1,129,809	

[1] Source: Pennsylvania Higher Education Assistance Agency

[2] Does not include data for the states of Maryland and Washington.

[3] Estimated data.

[4] Institution-related current expenditures, $3,820.5 million, plus capital expenditures, $358.7 million, plus debt service, $46.5 million.

Direct Services to Business, Agriculture and Government

Institutions of higher education provide various services that directly benefit business, agriculture and government. These services depend on the talent, expertise and experience of the professional staffs and on the availability of specialized facilities of the institutions. While the services provided directly benefit the recipients they also benefit society in general through enhanced knowledge and understanding of technical, social and cultural subjects. The types of services provided range from informal advising to applied laboratory research and vary in scope and offering from institution to institution.

In order to determine the types of services offered and to assess the resources committed by the institutions in the performance of these services, each institution in the study group was requested to furnish a description of the services it provides and the number of personnel and costs associated with these services.

Twenty-nine institutions responded to the request. The response rate was primarily a function of two factors. First, many institutions provide services to business, agriculture and government on a lesser scale and include the costs as part of their instructional and/or general operating expenses. Second, in a few cases the volume and types of services provided and the resources committed in providing these services are so extensive that a complete and accurate listing of them could not be compiled adequately.

The information supplied revealed that the types of services provided to business, agriculture and government basically fall into one of six general categories. The responses indicated that only a few institutions provide the full range of services. The six categories of services are: conferences and seminars, advising by professional staff members, continuing education programs, testing, technical consulting, and formal research activities. The total cost to those responding for providing these services was estimated to be $154 million. No reliable estimate of the number of people employed in the delivery of these services could be made from the data provided.

Capital Expenditures

Institutions of higher education have considerable annual expenditures for new construction and renovations and for the purchase of new equipment. For a single institution these expenditures can occur at irregular intervals making an analysis using data for only one year potentially misleading. However, when viewed in the aggregate and using data for several years, some reasonably valid conclusions can be drawn from the data.

A total of $126,047,841 was spent on acquisitions or new construction or renovations of land and buildings in fiscal 1979-80 by those responding to our survey. The five-year average yearly expenditure (1975-76 through 1979-80) for these institutions was $163,868,993. Total additions of $152,168,061 to land and building values were reported to the Pennsylvania Department of Education for all institutions comprising the study group in 1979-80. In addition, a total of $57,138,131 was spent on new capital equipment in fiscal 1979-80 by those responding to our survey. The five-year average for these institutions was $55,823,680. Total additions of $88,099,826 to equipment values were reported to the Pennsylvania Department of Education for all institutions comprising the study group in fiscal 1979-80.

Total capital expenditures in fiscal 1979-80 were $183,185,972 for those responding to the survey and $240,267,887 for all institutions in the study group.

Construction activity typically has a strong impact on the local economy since labor and materials are usually acquired locally.

The dollar amount of equipment purchased in fiscal 1979-80 from Pennsylvania suppliers was estimated to be $38,943,523 or 68.2 percent of total equipment purchases made by institutions responding to our survey. Using this as a base, the total dollar amount of equipment purchased by institutions in the study group from Pennsylvania suppliers would be $60,084,081. Assuming that virtually all labor and materials would be supplied by Pennsylvania sources, the total *in-state* capital expenditure in 1979-80 was $212,252,142.

Using the same multiplier (1.69) developed to calculate the effects of respending for institution-related expenditures for non-capital goods and services, the total impact of institutional capital expenditures on the Pennsylvania economy in fiscal year 1979-80 was $358,706,120.

Regional Impacts

An analysis by region (within SMSA or outside SMSA) was conducted utilizing certain data supplied by those institutions responding to the questionnaire. Each regional analysis presents aggregated data for those institutions with main campuses located within the region and makes relevant comparisons with personal income, employment and business volume data for that region.

The results of these analyses are subject to certain caveats: (1) The total for purchases made by institutions within an SMSA consists only of purchases made within the SMSA by those institutions located in that SMSA; (2) Pennsylvania resident employees of institutions were also considered to be residents of the same region of the main campus location. This overstates data in main campus location regions and understates data in branch campus location regions for institutions with branch campuses located in regions different from the main campus; (3) Data presented is only for the 99 institutions responding to the questionnaire; (4) Although the effects of economic factors and conditions would cause them to vary, a uniform multiplier of 1.60 was used to calculate total attributable expenditures for each region.

The exhibit below shows the relative impacts of the institutions of higher education in each region to that region for expenditures, employment and payroll. The multiplier 1.60 was used to increase the institutional data to include the effects of respending in the region.

The data show direct impacts in 12 of the 13 regions in Pennsylvania. The impacts are a function of the strength of the economic base of the region and the number of sizes of the institutions located in that region. The non-SMSA region received the greatest impacts from expenditures and payrolls of institutions of higher education, while the greatest impact on employment was in the Philadelphia SMSA. (See Appendix D, Table D-3 for detail)

EXHIBIT 21

Ratios of Total Expenditures, Employment and Payroll Attributable to Higher Education in Pennsylvania to Total Sales Volume, Employment and Payroll in Pennsylvania — By Region

SMSA Region	Attrib. Expend. as % of Total Retail, Wholesale & Select. Serv. Ind.-Sales	Attributable Employment as % of Total Employment	Attributable Payroll as % of Total Labor & Proprietors' Income
Outside SMSA	3.4%	3.3%	3.3%
# 1 Allentown, Bethlehem, Easton [1]	2.0	2.3	1.7
# 2 Altoona	—	—	—
# 3 Erie	2.7	2.1	1.9
# 4 Harrisburg	1.1	1.4	1.2
# 5 Johnstown	0.4	0.4	0.3
# 6 Lancaster	1.2	1.2	1.3
# 7 Northeast Pa.	1.5	1.4	1.4
# 8 Philadelphia [1]	2.7	3.6	2.3
# 9 Pittsburgh	1.8	2.6	2.1
#10 Reading	1.5	1.2	1.3
#11 Williamsport	2.2	2.8	1.7
#12 York	0.6	0.6	0.6

[1] SMSA data adjusted to be Pennsylvania portion only.

Impacts by Institutional Category

An analysis by institutional category was conducted utilizing certain data obtained from responses to the questionnaire (and projected for the total), or directly from Department of Education publications.

The data show the relative impacts of each category of institution to total institution-related amounts and to revelant totals for Pennsylvania.

EXHIBIT 22

Institution-Related Data by Category — As Percents of Total Institution-Related Data (Data for 1979-80)

As Percent Of:	Private & State-Aided	State-Owned	State-Related	Community Colleges
Total Expend. in Pa. Attrib. to Higher Education	49.1%	10.1%	33.8%	7.0%
Total Employ. in Pa. Attrib. to Higher Education	48.0%	9.5%	36.0%	6.5%
Total Payroll in Pa. Attrib. to Higher Education	48.1%	9.5%	35.9%	6.5%
Total Full-Time-Equiv. (FTE) Enrollment	41.6%	17.6%	27.6%	13.2%

Exhibit 22 reveals that the private and state-aided institutions account for nearly one-half of total expenditures, employment and payroll attributable to higher education in Pennsylvania and over 40 percent of FTE enrollment. The state-related institutions account for approximately one-third of higher education-related expenditures and a slightly greater percentage of employment and payroll. These institutions had over one-quarter of total FTE enrollment.

State-owned institutions account for approximately 10 percent of expenditures, employment and payroll and almost 18 percent of FTE enrollment.

The community colleges account for approximately seven percent of expenditures, employment and payroll and just over 13 percent of FTE enrollment.

EXHIBIT 23

Institution-Related Data by Category — As Percents of Pennsylvania Totals (Data for 1979-80)

As Percent Of:	Private & State-Aided	State-Owned	State-Related	Community Colleges
Total Retail, Wholesale and Selected Service Industries Sales	1.5%	0.3%	1.0%	0.2%
Total Employment	1.7%	0.3%	1.3%	0.2%
Total Non-Agricultural Labor and Proprietors' Income	1.5%	0.3%	1.1%	0.2%

Exhibit 23 shows the greatest impact is by the private and state-aided institutions followed by the state-related, state-owned and community colleges. (See Appendix D, Table D-4 for detail)

Exhibits 22 and 23 show that the total attributable expenditures, employment and payrolls of all publicly supported institutions (state-owned, state-related and community colleges) and of all privately supported institutions (private and state-aided) contribute approximately equal amounts to the total impact of higher education on business volume, employment and labor and proprietors' income in Pennsylvania.

Summary of Economic Impacts

The economic impacts of institutions of higher education are summarized below. The results of the analyses of these impacts show the importance of the institutions to Pennsylvania while functioning in roles generally incidental to their primary purpose of providing post-secondary education and skills development.

1. Impact of the institution as a consumer —fiscal year 1979-80

A. Institutional expenditures

Total expenditures for non-capital goods and services made by institutions of higher education were $984,503,605. Of this amount, $814,449,503 was expended in Pennsylvania.

B. Faculty and staff expenditures

Total expenditures for non-capital goods and services made by faculty and staff personnel residing in Pennsylvania were $1,130,770,453. Of this amount, $1,074,231,930 was expended in Pennsylvania.

C. Student expenditures

Total expenditures for non-capital goods and services made by full-time students (exclusive of tuition and institution-provided room and board and fees) were $386,859,098. Of this amount, $367,516,143 was expended in Pennsylvania.

D. Direct support employees

Total expenditures for employees employed in jobs directly related to the support of higher education in Pennsylvania were $4,704,228. Of this amount $4,469,016 was expended in Pennsylvania.

E. Total expenditures

Total expenditures made in fiscal year 1979-80 in Pennsylvania by institutions of higher education, their employees and students, and by those employed in jobs directly related to higher education were $2,260,666,592. To account for subsequent respending of this amount in Pennsylvania, the multiplier (1.69) was applied. The total of higher education related expenditures at Pennsylvania business was $3,820,526,540. This represents an amount equivalent to three percent of total retail, wholesale and service industry sales in Pennsylvania.

This amount is an understatement of the actual total impact for the following reasons. Only expenditures made by resident employees and full-time students were used in the calculations. No reliable method could be developed to calculate total expenditures made by visitors to institutions of higher education. Results obtained from the case study institutions indicated that the total amount expended by visitors would be in excess of $100 million.

2. Impact of the institution as an employer.

A. Institutional employment

Institutions of higher education employ a total of 101,973 persons. Total payroll for these employees was $1,467,541,905.

B. Direct support employees

The total number of persons employed in jobs directly related to the support of institutions of higher education was 583. Total payroll for these employees was $5,836,366.

C. Multiplier effects on Pennsylvania employment and income

The total number of additional employees in Pennsylvania as a result of higher education-related expenditures was calculated by determining sales-per-employee ratios for selected Pennsylvania industries and dividing the appropriate ratio into the total expenditures made by the institutions and into the remainder of the total institution-related expenditures. It was estimated that 74,876 additional jobs in Pennsylvania were attributable to total institution-related expenditures.

D. **Total higher education-related employment**
The total number of persons who were employed in jobs attributable to higher education was 177,432. This represents an amount equal to 3.6 percent of total employment in Pennsylvania.

E. **Total higher education-related payroll**
The total payroll related to higher education was $2,446,317,015. This amount represents 3.1 percent of total non-agricultural labor and proprietors' income in Pennsylvania. In addition, to compare with other major employment sectors, payrolls attributable to higher education represent an amount equivalent to 9.3 percent of total labor and proprietors' income for Pennsylvania's manufacturers, 18.7 percent of total labor and proprietors' income for Pennsylvania's service industries and 20.5 percent of total labor and proprietors' income for Pennsylvania's retail and wholesale trade industries.

3. **Impact of the institution as an investor**
   A. Total deposits in Pennsylvania financial institutions by the institutions, their full-time employees and students and by related businesses (in proportion to institution-related expenditures) were $1,139,815,738. This creates an aggregate potential for credit base expansion in the amount of $1,005,287,849.
   B. Total institutions of higher education-related deposits in Pennsylvania represents 1.4 percent of total deposits in Pennsylvania financial institutions (as of 6/30/80).

4. **Impact of the institution as a property owner**
   A. Institutions of higher education own land, buildings and equipment with a total book value (as of 6/30/80) of $4,277,051,972.
   B. The total market value (as of 6/30/80) of endowments for all institutions of higher education in Pennsylvania was $1,039,985,527.
   C. A total of $750,898,380 in real property and $1,635,185,359 in inventory owned by businesses in Pennsylvania exists as a result of spending related to higher education.
   D. Total real property owned by institutions of higher education in Pennsylvania (as of 6/30/80) was valued at an amount equal to 7.3 percent of the total market value of taxable property in Pennsylvania (as of 12/31/80).

5. **Other impacts of institutions of higher education**
   A. Institutions of higher education received 27.5 percent of their total revenues from out-of-state sources in fiscal 1979-80. The total was $937,098,994.
   B. Institutions of higher education spent 14.6 percent of their total expenditures out-of-state in fiscal 1979-80. These totaled $463,656,693.
   C. Total out-of-state revenues exceeded total out-of-state expenditures by $473,442,301 and represented a net gain to Pennsylvania's economy. Put in other terms, Pennsylvania's institutions of higher education bring in $2.02 for every dollar spent outside of Pennsylvania.
   D. Total spending (for all purposes) attributable to higher education in Pennsylvania in fiscal 1979-80 represents a return of $1.70 for every dollar "invested" (from Pennsylvania sources) in these institutions in the same period.
   E. Institutions of higher education paid over $3,250,000 in non-payroll taxes and nearly $1,130,000 in fees to various governmental entities in fiscal 1979-80.
   F. Institutions of higher education provide various services that directly benefit business, agriculture and government. These services are often dependent upon the unique talent, expertise and experience of the professional staffs and the specialized facilities of the institutions.
   G. While not necessarily being the direct beneficiaries of services provided by institutions, society in general does benefit through the enhanced knowledge and understanding of technical, medical, social and cultural subjects.
   H. The types of services provided by the institutions directly benefiting business, agriculture and government basically can be categorized as: conferences and seminars, professional staff advising, continuing education programs, testing, technical consulting and formal research activities. The total expenditure by institutions in providing these services exceeds $150 million.
   I. Institutions of higher education made capital expenditures in excess of $240 million in fiscal 1979-80. Of this amount, over $152 million was spent on acquisitions or new construction or renovations of land and buildings and over $88 million was spent for new equipment.
   J. Total capital expenditures made in Pennsylvania in 1979-80 by institutions of higher education was estimated to be $212,252,142. By applying the same multiplier used to calculate total non-capital expenditures, the total impact of capital expenditures would be $358,706,120.
   K. Institutions of higher education have varying impacts on the regions of Pennsylvania. These impacts are a function of the strength of the economic base of the region and the number and sizes of the institutions located in the region.
   L. The greatest impact of institution-related expenditures and payroll was on the collective non-SMSA region of Pennsylvania. The greatest impact of the institution-related employment was in the Philadelphia SMSA.
   M. The attributable expenditures, employment and payrolls of all publicly supported institutions (state-owned, state-related and community colleges) and of all privately supported institutions (private and state-aided), contribute approximately equal amounts to the total impact on business volume, employment and labor and proprietors' income in Pennsylvania.

The importance and value of higher education to Pennsylvania's economy and quality of life are of great significance. While functioning as operating entities the analyses show the institutions play major roles as employers, consumers, investors and property owners. In addition are the far-ranging and less measurable impacts of higher education that result from the advances in technical, medical, cultural and social fields of knowledge that improve and enhance, both directly and indirectly, the lives of every resident of Pennsylvania.

IV. SOME FUTURE IMPLICATIONS

Discussed earlier was the reciprocal character of the relationships between Pennsylvania's colleges and universities and its economy. The impacts of higher education *on* the economy of Pennsylvania, both short-term as operating enterprises and long-range as learning centers, are substantial and essential. At the same time, the impacts *of* the economy upon enrollments, costs and sources of support are critical factors in the continuing availability of adequate higher education facilities in Pennsylvania.

Impacts ON the Economy

The aggregate short-range impacts upon Pennsylvania's economy of its institutions of higher education are shown by this study to be varied and significant — possibly more so than has been generally recognized.

As operating entities, the colleges and universities represent a major segment of the growing service industries in Pennsylvania. As such, institution and direct support employees account for the equivalent of 11 percent of the service industry jobs and 19 percent of payrolls in this sector. Unlike much of the service industry, the colleges' and universities' financial operations are interstate in character. Approximately 27 percent of their aggregate income originates outside Pennsylvania, with over one-half of that amount being retained for expenditure in Pennsylvania (i.e. one dollar is spent outside of Pennsylvania for each two dollars received).

In their collective operating role, the colleges and universities serve as substantial producers of jobs, as consumers of goods and services, as builders and owners of properties and as depositers and investors of cash resources contributing to an expanded credit base.

As employers, higher education institutions are relatively stable users of a variety of skills and capabilities. In the aggregate, they currently provide, directly and indirectly, employment opportunities equivalent to four percent of the total employment in Pennsylvania, accounting for over three percent of the total non-agricultural employment income in the state.

As consumers of goods and services, the colleges and universities collectively account for three percent of total wholesale and retail sales of mercantile and service enterprises in Pennsylvania doing business with a wide variety of such enterprises.

In addition, they have acquired or constructed and own real property equivalent to seven percent of the reported market value of Pennsylvania's taxable real estate. They account for, directly and indirectly, over one percent of the total bank deposits in Pennsylvania, adding more than $1 billion to the state's credit base.

A significant and growing number of education institutions provide direct aids and services to Pennsylvania's business community generally not available elsewhere. These include access to skills and facilities for product development and testing, facilities for conferences, seminars and in-service training and expert technical and management consulting advice and services. Their presence is an immeasurable but acknowledged attraction to location of new or expanded job-producing business enterprises in the state, particularly in the high-technology fields.

Also of clear, if not quantifiable importance as a factor in the state's economic welfare is the primary role of the colleges and universities as learning enterprises, meeting current and future demands in the state's economy for managerial, technical and entrepreneural manpower and adding to the potential productivity of the state's manpower resources.

Impacts OF the Economy

If Pennsylvania's colleges and universities have bestowed favors upon its economy, the favors have not always been returned. This has been particularly evident when combined effects of inflated costs, exagerated interest rates and recurring recessions have multiplied the difficulties of balancing academic budgets. Income from endowments and other philanthropic sources have increased, but not sufficiently to keep pace with inflated costs. Common symptoms are continuing increases in student tuition and fees, and pressures for increased governmental subsidies in the form of direct grants or student aid.

Whether or not the availability of higher education facilities in Pennsylvania at present or expanded levels of adequacy will be assured will be influenced by both economic and demographic developments.

The Pennsylvania State Planning Board in its recent analysis "Choices for Pennsylvanians", predicts that projecting even current conditions into 1990 justifies a cautious but optimistic outlook for Pennsylvania's employment opportunities. They also predict an almost doubling of the rate of increase of the Gross State Product during the 1990's, compared with the 1980's, and a doubling of the rate of Pennsylvania's personal income in the same period. Although these predicted growth rates represent an improvement over past performance they are expected to remain below national averages. Also predicted is a continuing shift of employment from manufacturing to non-manufacturing sectors of the economy, particularly in the trade and service industries.

At the same time, population predictions forecast a continuing leveling and downward trend of the college-age segment of Pennsylvania's population, reflecting a national trend.

Under these circumstances, there have been predictions of hard times ahead for colleges and universities, with the smaller institutions being most vulnerable to threats to their continued individual existence. Efforts to avert permanent damage to Pennsylvania's structure of higher education facilities, both private and public, will rely on two major courses of action: cutting costs and increasing income.

Continued efforts to improve efficiency and cost-effectiveness will, of necessity, be intensified, and relatively severe measures to eliminate or consolidate programs and course offerings and to reduce faculty and staff complements may be indicated by the anticipated reduction in enrollments. Even so, most institutions will face a demand for increasing revenues to finance operating budgets likely to be swelled by possibly reduced but nevertheless persistent rates of price inflation, and to maintain adequate salary levels for administrative faculty and staff personnel.

To increase tuition and fees will create problems for individual institutions competing for a reduced pool of stu-

dent recruits. Governmental aid, whether in the form of direct grants, contract fees or student aid may be constricted by the current trends of fiscal conservatism at both the federal and state levels. Endowments, alumni giving, and philanthropic aid from corporations and foundations will be called upon to fill a larger portion of the higher education budget gap, but even with aggressive solicitation efforts are not likely to close the gap entirely.

Meeting a Threat

The threat in the 1980's of any marked deterioration of Pennsylvania's s traditional quantity or quality of higher education capabilities presents a multiple threat to the economic welfare of the state. One threat is to the continued contribution to the economy rendered by the colleges and universities as economic operating enterprises, the importance of which is revealed by this study. Also in jeopardy are the continued provision of direct technical and managerial services to business and industry, and the primary economic role of the higher education institutions as sources of trained manpower and leadership.

Avoiding this threat is a shared responsibility. Those who govern and manage the colleges and universities must gear their output and programs to meet changing demands of the economy. Those responsible for providing the necessary financial support to assure sustained existence and growth of Pennsylvania's facilities for higher education must be kept aware of the economic stakes involved. Doing so is a prime purpose of this study.

APPENDIX A

— ROSTER OF COMMITTEES

— CASE STUDY INSTITUTIONS

PENNSYLVANIA HIGHER EDUCATION ECONOMIC IMPACT STUDY

Overview Committee

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Harrisburg Area Community College

Mr. Robert Reynolds
Special Assistant to Deputy Secretary for
Research, Planning and Data Management
Pennsylvania Department of Education

Mr. Norman Robertson
Sr. Vice President and Chief Economist
Mellon Bank, N.A.

Dr. Andrew Shaw
Dean of Management
Wilkes College

Dr. Thomas Vernon
Associate Professor of Economics
Clarion State College

PENNSYLVANIA HIGHER EDUCATION ECONOMIC IMPACT STUDY

CASE STUDY INSTITUTIONS

Private Colleges and Universities
- Allegheny College
- Carnegie-Mellon University
- Gannon University
- Juniata College
- Lycoming College
- University of Scranton
- Villanova University
- Washington and Jefferson College

State-Aided
- Thomas Jefferson University

State-Owned
- California State College
- Clarion State College
- Edinboro State College

State-Related
- Temple University
- University of Pittsburgh

Community Colleges
- Community College of Allegheny County
- Community College of Philadelphia
- Williamsport Area Community College

APPENDIX B

HIGHER EDUCATION STATUS AND TRENDS

Presented in this Appendix are detail tabulations of data relating to past trends and current status of enrollments, finances and faculty of Pennsylvania's institutions of higher education. These are the bases for summary exhibits included in the body of this Report.

TABLE B-1 Fall Enrollments in Pennsylvania Institutions of Higher Education.

TABLE B-2 First-Time Freshmen Enrollments in Pennsylvania Institutions of Higher Education, by Institutional Category.

TABLE B-3 Total Current-Funds Revenues, by Institutional Category.

TABLE B-4 Total Current-Funds Expenditures, by Institutional Category.

TABLE B-5 Current-Funds Revenues by Source for All Pennsylvania Institutions of Higher Education.

TABLE B-6 Current-Funds Expenditures by Purpose for All Pennsylvania Institutions.

TABLE B-7 Current-Funds Revenues, by Source, by Institutional Category.

TABLE B-8 Current-Funds Expenditures, by Object, by Institutional Category.

TABLE B-9 Number of Full-Time Instructional Faculty, by Type of Institution.

TABLE B-1
Fall Enrollments in Pennsylvania Institutions of Higher Education 1970, 1975 and 1979

	1970	Percent of Total	1975	Percent of Total	1979	Percent of Total	Percent of Change 1970-79
All institutions	411,053	100%	480,863	100%	498,173	100%	21.2%
Total Public	233,407	56.8%	287,436	59.8%	282,243	56.7%	20.9%
State Colleges & University	72,776	17.7%	80,065	16.7%	76,878	15.4%	5.6%
State-related	119,741	29.1%	139,300	29.0%	128,667	25.8%	7.5%
Community colleges	40,890	9.9%	68,071	14.2%	76,698	15.4%	87.6%
Total Private	177,646	43.2%	184,177	38.3%	199,407	40.0%	12.2%
Private, State-aided	37,530	9.1%	40,358	8.4%	46,041	9.2%	22.7%
Private colleges & Universities	132,477	32.2%	135,687	28.2%	144,413	29.0%	9.0%
Theological Seminaries	1,994	.5%	2.240	.5%	2,661	.5%	33.5%
Private Junior Colleges	5,645	1.4%	5,892	1.2%	6,292	1.3%	11.5%
Proprietary Schools	-	-	9,250	1.9%	16,432	3.3%	184.3%[1]
State School Technology	-	-	-	-	91	-	-

[1]Since 1971

Source: Pennsylvania Department of Education, Bureau of Planning and Education Statistics, *Our Colleges and Universities Today: Summer and Fall Enrollments 1970, 1975 and 1979.*

TABLE B-2
First-time Freshmen Enrollments in Pennsylvania Institutions of Higher Education, by Institutional Category — 1970, 1975 and 1979

	1970	Percent of Total	1975	Percent of Total	1979	Percent of Total	Percent of Change 1970-79
All institutions	90,595	100%	113,220	100%	111,577	100%	23.2%
Total Public	49,713	54.9%	72,415	64.0%	64,603	57.9%	30.0%
State Colleges & University	14,526	16.0%	17,017	15.0%	16,692	15.0%	14.9%
State-related	16,709	18.4%	24,071	21.3%	20,243	18.1%	21.2%
Community Colleges	18,478	20.4%	31,327	27.7%	26,668	24.8%	49.7%
Total Private	40,882	45.1%	36,345	32.1%	38,515	34.5%	-5.8%
Private, State-aided	7,312	8.1%	4,916	4.3%	5,339	4.8%	-27.0%
Private Colleges & Universities	30,729	33.9%	28,272	25.0%	30,313	27.2%	-1.4%
Theological Seminaries	46	-	26	-	106	.1%	130.4%
Private Junior Colleges	2,795	3.1%	3,131	2.8%	2,757	2.5%	-1.4%
Proprietary Schools	-	-	4,460	3.9%	8,406	7.5%	142%[1]
State School of Technology	-	-	-	-	53	-	-

[1]Since 1972

Source: Pennsylvania Department of Education, Bureau of Planning and Education Statistics, *Our Colleges and Universities Today, Summer and Fall Enrollments 1970, 1975 and 1979.*

TABLE B-3

Pennsylvania Institutions of Higher Education
Total Current-Funds Revenues, by Institutional Category — 1970, 1975 and 1979
($ Millions)

1970	1970	Percent of Total	1975	Percent of Total	1979	Percent of Total	Percent of Change 1970-79
All institutions	$1,167.7	100%	$1,963.3	100%	$2,801.6	100%	139.9%
Total Public	$553.3	47.4%	$970.6	49.4%	$1,294.7	46.2%	134.0%
State Colleges & University	$136.7	11.7%	$236.7	12.1%	$304.4	10.9%	122.7%
State-related Universities	$377.6	32.3%	$646.0	32.9%	$860.2	30.7%	127.8%
Community Colleges	$ 39.0	3.3%	$ 87.9	4.5%	$130.1	4.6%	233.6%
Total Private	$614.3	52.6%	$976.9	49.8%	$1,468.4	52.4%	139.0%
Private State-aided	$265.6	22.7%	$480.5	24.5%	$768.4	27.4%	189.3%
Private Colleges & Universities	$332.8	28.5%	$476.6	24.3%	$671.5	24.0%	101.8%
Theological Seminaries	$ 5.6	0.5%	$ 8.1	0.4%	$ 10.1	0.4%	80.4%
Private Junior Colleges	$ 10.3	0.9%	$ 11.7	0.6%	$ 18.4	0.7%	78.6%
Proprietary Schools & State School of Tech.	$ 7.9[1]	.6%[1]	$ 15.9	0.8%	$ 38.4[2]	1.4%	386.1%[3]

[1]Figures for 1971 — earliest available. [2]State School of Tech. added in 1977. [3]Percent change since 1971.

Source: Pennsylvania Department of Education, Bureau of Planning and Education Statistics, *Our Colleges and Universities Today, Financial Statistics 1969-70, 1974-75, 1978-79.*

TABLE B-4

Pennsylvania Institutions of Higher Education
Total Current-Funds Expenditures, by Institutional Category — 1970, 1975 and 1979
($ Millions)

	1970	Percent of Total	1975	Percent of Total	1979	Percent of Total	Percent of Change 1970-79
All institutions	$1,166.5	100%	$1,950.8	100%	$2,741.0	100%	135%
Total Public	$546.4	46.8%	$963.4	49.4%	$1,277.5	46.6%	134%
State Colleges & University	$135.1	11.6%	$236.7	12.1%	$304.4	11.1%	125.3%
State-related Universities	$374.2	32.1%	$642.2	32.9%	$843.7	30.8%	125.5%
Community Colleges	$ 37.1	3.2%	$ 84.5	4.3%	$129.4	4.7%	248.8%
Total Private	$620.2	53.2%	$973.2	49.9%	$1,429.2	52.1%	130.4%
Private, State-aided	$272.6	23.4%	$488.1	25.0%	$756.1	27.6%	177.4%
Private Colleges & Universities	$332.3	28.5%	$465.2	23.8%	$645.3	23.5%	94.2%
Theological Seminaries	$ 5.6	0.5%	$ 8.2	0.4%	$ 10.2	0.4%	82.1%
Private Junior Colleges	$ 9.7	0.8%	$ 11.7	0.6%	$ 17.6	0.6%	81.4%
Proprietary Schools & State School of Tech.	$ 7.9[1]	-	$ 14.4	0.7%	$ 34.3[2]	1.3%	334.2%[3]

[1]Figures for 1971 (not included in total). [2]State School of Tech. added in 1977. [3]Percent change since 1971.

Source: Pennsylvania Department of Education, Bureau of Planning and Education Statistics, *Our Colleges and Universities Today, Financial Statistics, 1969-70, 1974-75 and 1978-79.*

TABLE B-5

Current-Funds Revenues by Source for All Pennsylvania Institutions of Higher Education 1970, 1975 and 1979 ($ Millions)

	1970	Percent of Total	1975	Percent of Total	1979	Percent of Total	Percent of Change 1970-79
Total Revenues	$1,167.7	100%	$1,963.3	100%	$2,801.6	100%	139.9%
Tuition & fees	$351.3	30.0%	$577.8	29.4%	$878.5	31.4%	150.1%
Govt. appropriations:	$266.6	22.8%	$445.6	22.7%	$562.9	20.0%	111.1%
a. Federal	$ 5.2	.4%	$ 15.6	.8%	$ 17.5	.6%	236.5%
b. State & Local	$261.4	22.4%	$430.0	21.9%	$545.4	19.5%	108.6%
Government grants & contracts:	$161.5	13.8%	$246.7	12.6%	$317.6	11.3%	96.7%
a. Federal	$139.0	11.9%	$201.5	10.3%	$259.6	9.3%	86.8%
b. State & Local	$ 22.5	1.9%	$ 45.1	2.3%	$ 58.0	2.0%	157.8%
Endowment Income	$ 39.5	3.4%	$ 53.7	2.7%	$ 70.0	2.5%	77.2%
Private Gifts	$ 37.0	3.2%	$ 95.6	4.9%	$117.1	4.0%	216.5%
Hospitals	$ 69.3	5.9%	$247.4	12.6%	$406.9	14.5%	487.2%
Other (remaining)	$242.5	20.8%	$296.5	15.1%	$448.6	16.0%	85.0%

Source: Pennsylvania Department of Education, Bureau of Planning and Education Statistics, *Our Colleges and Universities Today, Financial Statistics, 1969-70, 1974-75 and 1978-79.*

TABLE B-6

Pennsylvania Institutions of Higher Education Current-Funds Expenditures by Purpose for All Pennsylvania Institutions — 1970, 1975 and 1979 ($ Millions)

	1970	Percent of Total	1975	Percent of Total	1979	Percent of Total	Percent of Change 1970-79
Total Expenditures	$1,166.5	100%	$1,950.8	100%	$2,741.0	100%	135%
Instruction	$393.4	33.7%	$596.4	30.6%	$820.5	29.9%	108.6%
Operation & Maintenance of Plant	$100.4	8.6%	$170.2	8.7%	235.6	8.6%	134.7%
Scholarships & Fellowships	$69.0	5.9%	$77.8	4.0%	$107.5	3.9%	55.8%
Academic & Institutional Support	$209.7	18.0%	$336.7	17.3%	$437.3	16.0%	108.5%
Auxiliary Enterprises	$142.0	12.2%	$220.8	11.3%	$302.8	11.0%	113.2%
Research	$114.8	9.8%	$153.3	7.9%	$190.2	6.9%	65.7%
Hospitals	$71.5	6.1%	$259.0	13.3%	$406.9	14.8%	469.1%
Other	$65.6	5.6%	$136.6	7.0%	$240.1	8.8%	266.0%

Source: Pennsylvania Department of Education, Bureau of Planning and Education Statistics, *Our Colleges and Universities Today, Financial Statistics 1969-70, 1974-75 and 1978-79*

TABLE B-7

Pennsylvania Institutions of Higher Education
Current-Funds Revenues, by Source, by Institutional Category — 1979
($ Millions)

	All Institutions	State Colleges & Univ.	State-related Univ.	Comm. Colleges	Private, State-aided.	Private Colleges & Univ.	Theological Semin.	Private Junior Colleges	Prop. Schools & State School of Tech.
Total Revenues	$2,801.6	$304.4	$860.2	$130.1	$768.4	$671.5	$10.1	$18.4	$38.4
Tuition & Fees	$878.5	$75.6	$196.8	$37.9	$156.7	$366.8	$2.3	$10.3	$32.0
Government appropriations:	562.9	182.6	264.0	70.2	42.0	1.0	-	-	3.2
a. Federal	17.5	-	11.8	2.0	2.6	.9	-	-	.3
b. State & Local	545.4	182.6	252.2	68.2	39.4	.1	-	-	2.9
Government grants & contracts:	317.6	6.6	119.5	10.8	121.2	57.1	-	1.9	.5
a. Federal	259.6	4.2	95.2	7.9	111.4	39.9	-	.8	.2
b. State & Local	58.0	2.4	24.3	2.9	9.8	17.2	-	1.1	.3
Endowment Income	70.0	-	13.2	-	16.0	37.7	2.0	.5	.7
Private Gifts	117.1	.1	26.1	1.4	26.9	57.4	4.2	1.0	-
Other	855.5	39.5	240.6	9.8	405.5	151.5	1.7	4.7	2.0

Source: Pennsylvania Department of Education, Bureau of Planning and Education Statistics, *Our Colleges and Universities Today, Volume XVII, Number 8, Financial Statistics 1978-79, 1980.*

TABLE B-8

Pennsylvania Institutions of Higher Education
Current-Funds Expenditures, by Object, by Institutional Category — 1979
($ Millions)

	All Institutions	State Colleges & Univ.	State-related Univ.	Comm. Colleges	Private, State-aided	Private Colleges & Univ.	Theological Semin.	Private Junior Colleges	Prop. Schools & State School of Tech.
Total Expenditures	$2,741.0	$304.4	$843.7	$129.4	$756.1	$645.3	$10.2	$17.6	$34.3
Instruction	$820.5	$131.5	$271.5	$56.5	$139.1	$202.1	$3.2	$4.9	$11.7
Operation & Maintenance of Plant	235.6	47.1	63.8	13.4	37.7	64.5	1.2	1.9	6.1
Research	190.2	.9	83.3	.1	75.9	29.9	-	-	-
Hospitals	406.9	-	107.2	-	298.3	-	-	-	1.4
Scholarships & Fellowships	107.5	.3	24.4	2.2	32.4	46.9	.5	.6	.2
Academic & Institutional Support	437.3	77.0	116.0	37.2	67.5	123.6	3.4	4.1	8.5
Auxiliary Enterprises	302.8	25.2	101.3	6.3	39.1	123.9	1.4	3.2	2.4
Other	240.1	22.3	76.3	13.8	66.0	54.4	.4	3.0	3.9

Source: Pennsylvania Department of Education, Bureau of Planning and Education Statistics, *Our Colleges and Universities Today, Volume XVII, Number 8, Financial Statistics 1978-79,* 1980

TABLE B-9

Pennsylvania Institutions of Higher Education
Number of Full-Time Instructional Faculty, by Type of Institution
1970, 1975 and 1979

	1970	Percent of Total	1975	Percent of Total	1979	Percent of Total	Percent of Change 1970-79
All institutions	17,394	100%	19,027	100%	20,196	100%	16.1%
State Colleges & University	3,494	20.1%	4,042	21.2%	4,203	20.8%	20.3%
State-related Universities	4,547	26.1%	4,785	25.1%	5,418	26.8%	19.1%
Community Colleges	1,262	7.3%	1,531	8.0%	1,814	9.0%	43.7%
Private, State-aided	1,441	8.3%	1,909	10.0%	1,643	8.1%	14.0%
Private Colleges & Universities	6,285	36.1%	6,179	32.5%	6,283	31.1%	-
Theological Seminaries	140	0.8%	128	0.7%	113	0.6%	-19.3%
Private Junior Colleges	225	1.3%	150	0.8%	207	0.1%	-8.0%
Proprietary Schools & State School of Tech.	235[1]	1.3%[1]	303	1.6%	517	2.6%	120.0%

[1]Figures for 1972.

Source: Pennsylvania Department of Education, Bureau of Planning and Education Statistics, *Our Colleges and Universities Today, Salaries and Fringe Benefits of Full-Time Instructional Faculty at Pennsylvania's Institution of Higher Education 1969-70, 1974-75 and 1978-79.*

APPENDIX C

HIGHER EDUCATION IN THE STATES

The material in this section of the Appendix allows a more detailed comparison of higher education in Pennsylvania to other states than was possible in the body of the report. In this section, as was done earlier in the report, Pennsylvania is compared to 10 other states and the U.S. as a whole. The states compared with Pennsylvania are: California, Illinois, Indiana, Massachusetts, Michigan, New Jersey, New York, North Carolina, Ohio and West Virginia.

Numbers of Institutions

As of 1978, there were some 3,095 institutions and branches of higher education in the U.S., as shown in Table C-1. Private institutions accounted for slightly more than half of that number. Among the larger or contiguous states chosen for comparison with Pennsylvania, the Commonwealth's ratio of the number of private to public institutions was third highest: 66 percent private and 34 percent public. At one extreme was Masachusetts with 72 percent of the institutions of higher education classified as private, and at the other, North Carolina and Indiana with only 39 percent so classified.

TABLE C-1

Number of Institutions and Branches of Higher Education, 1978

	Total	% Public	% Private
U.S.	3,095	48%	52%
California	257	53%	47%
Illinois	154	41%	59%
Indiana	64	38%	62%
Massachusetts	119	28%	72%
Michigan	95	47%	53%
New Jersey	65	48%	52%
New York	291	29%	71%
North Carolina	120	61%	39%
Ohio	132	47%	53%
Pennsylvania	179	34%	66%
West Virginia	28	61%	39%

Source: U.S. Department of Health, Education and Welfare, National Center for Education Statistics, *Digest of Education Statistics 1979*, Government Printing Office, Washington, D.C.

While total numbers are important, they reveal nothing about the size of population served. In Table C-2, a comparison is made between the numbers of institutions and populations served in the 11 states. It appears that in 1978, Pennsylvania had a favorable balance between its share of the nation's institutions and population.

TABLE C-2

Percentage of Total U.S. Institutions of Higher Education and Population — 1978 Pennsylvania and Ten States

	% of U.S. Instiutions	% of U.S. Population
U.S.	100%	100%
California	8.3%	10.2%
Illinois	5.0%	5.2%
Indiana	2.1%	2.5%
Massachusetts	3.8%	2.6%
Michigan	3.1%	4.2%
New Jersey	2.1%	3.4%
New York	9.4%	8.1%
North Carolina	3.9%	2.6%
Ohio	4.3%	4.9%
Pennsylvania	5.8%	5.4%
West Virginia	.9%	.9%

Sources: U.S. Department of Health, Education and Welfare, National Center for Education Statistics, *Digest of Education Statistics 1979*, Government Printing Office, Washington, D.C.

U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the U.S. 1979*, Government Printing Office, Washington, D.C.

On a per capita basis, shown in Table C-3, Pennsylvania had slightly above the national average for its total number of institutions given the Commonwealth's population. By type of institution, Pennsylvania had a fewer number of public institutions per capita than the national average, and a greater number of private institutions, as evidenced by the size of population served by institutions of each type.

TABLE C-3

Population Per Institution and Branch of Higher Education, and by Type of Institution — 1978 (000)

	Total	Public	Private
U.S.	70.5	148.0	134.4
California	86.7	165.0	182.7
Illinois	73.0	178.5	123.5
Indiana	84.0	223.9	134.4
Massachusetts	48.5	175.0	67.1
Michigan	96.7	204.2	183.8
New Jersey	112.7	236.4	215.5
New York	61.0	213.8	85.3
North Carolina	46.5	76.4	118.7
Ohio	81.4	173.4	153.6
Pennsylvania	65.6	192.6	99.6
West Virginia	66.4	109.4	169.1

Sources: U.S. Department of Health, Education and Welfare, National Center of the Education Statistics, *Digest of Education Statistics 1979*, Government Printing Office, Washington. D.C.

U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the U.S. 1979*, Government Printing Office, Washington, D.C.

Enrollments

Just as the ratio of the number of public/private institutions of higher education varies among the states, so does the public/private ratio of enrollments as shown in Table C-4. In 1977, for the U.S. as a whole, 78 percent of total enrollments were in public instiutions, despite the greater number of private institutions.

TABLE C-4

1977 Enrollments in Public, Private Institutions of Higher Education Expressed as a Percentage of Total Enrollments

			% Change Since 1971	
	Public	Private	Public	Private
U.S.	78%	22%	30%	14%
California	90%	10%	33%	35%
Illinois	76%	24%	39%	8%

Table C-4 (continued)

	Public	Private	% Change Since 1971 Public	Private
U.S.	78%	22%	30%	14%
Indiana	76%	24%	15%	-.4%
Massachusetts	44%	56%	29%	12%
Michigan	87%	13%	19%	15%
New Jersey	77%	23%	42%	-.4%
New York	57%	43%	11%	22%
North Carolina	79%	21%	51%	8%
Ohio	78%	22%	22%	4%
Pennsylvania	60%	40%	16%	5%
West Virginia	87%	13%	31%	-10%

Source: U.S. Department of Health, Education and Welfare, National Center for Education Statistics, *Fall Enrollments in Institutions of Higher Education, 1971* and *1977*, Government Printing Office, Washington, D.C.

Among the group of 10 states, the percentages of total enrollments in public institutions ranged from a high of 90 percent in California to a low of 44 percent in Massachusetts. Pennsylvania had the third smallest percentage of total enrollments in public institutions among the 10 states.

Referring again to national figures, enrollments in public institutions grew about twice as fast as in private institutions between 1971-77, although the patterns of growth varied among the 10 states. In three states the enrollments in private institutions declined over this period. In all but two states, California and New York, enrollments grew faster in public institutions.

In 1977, Pennsylvania had 4.2 percent of the nation's total enrollments, as shown in Table C-5, compared to 5.8 percent of the nation's institutions (shown above). This suggests that Pennsylvania's institutions tended to be slightly smaller than average.

Fall enrollments for 1977 in institutions of higher education in the U.S. as a whole were up 26.1 percent over 1971 to a total of 11.3 million. Enrollments in North Carolina had the greatest growth over that period, while enrollments in Pennsylvania grew by the second smallest percentage among the group of 10 states as shown in Table C-6.

TABLE C-5

Percentage of Total U.S. Higher Education Enrollments, and by Public, Private — 1977 Pennsylvania and Ten States

	% of Total Enroll.	% of U.S. Public Enroll.	%$ of U.S. Private Enroll.
U.S.	100%	100%	100%
California	15.4%	17.7%	7.4%
Illinois	5.5%	5.3%	6.1%
Indiana	2.0%	1.9%	2.2%
Massachusetts	3.3%	1.9%	8.7%
Michigan	4.3%	4.8%	2.5%
New Jersey	2.7%	2.6%	2.9%
New York	8.4%	6.1%	16.7%
North Carolina	2.3%	2.3%	2.2%
Ohio	4.0%	4.0%	4.1%
Pennsylvania	4.2%	3.2%	7.8%
West Virginia	.7%	.8%	.4%

Source: U.S. Department of Health, Education and Welfare, National Center for Education Statistics, *Digest of Education Statistics 1979*, Government Printing Office, Washington, D.C.

TABLE C-6

1977 Fall Enrollments in Institutions of Higher Education and Percentage Change Since 1971

	1977 Enrollments	% Change Since 1971
U.S.	11,285,787	26.1%
California	1,743,243	33.7%
Illinois	616,209	30.2%
Indiana	224,992	10.6%
Massachusetts	375,380	19.0%
Michigan	481,767	18.7%
New Jersey	301,091	29.1%
New York	950,857	15.1%
North Carolina	257,198	39.4%
Ohio	452,754	16.9%
Pennsylvania	475,659	11.6%
West Virginia	81,121	23.9%

Source: U.S. Department of Health, Education and Welfare, National Center for Education Statistics, *Fall Enrollments in Institutions of Higher Education, 1971* and *1977*, Government Printing Office, Washington, D.C.

Migration of students occurs among the states as students from one state enroll in schools in another. Such migration rates vary for public and private institutions from state to state, as shown in Table C-7. For the U.S. as a whole in 1976, an average of 10 percent of the first-time students enrolled in public institutions across state boundaries while 12 percent of total enrollees at public institutions were from out-of-state. At private institutions, about 38 percent of first-time students and 36 percent of all enrollees were from out-of-state. In Pennsylvania, both public and private institutions attracted fewer than the average number of students from out-of-state.

TABLE C-7

Portion of Total Higher Education Headcount Enrollments from Out-of-State — 1976

	Public Institutions		Private Institutions	
	First-Time Students	Total	First-Time Students	Total
U.S. Average	10%	12%	38%	36%
California	11%	12%	28%	28%
Illinois	6%	7%	24%	28%
Indiana	12%	14%	44%	47%
Massachusetts	6%	7%	42%	41%
Michigan	9%	12%	23%	24%
New Jersey	4%	5%	23%	39%
New York	2%	3%	24%	22%
North Carolina	10%	12%	44%	46%
Ohio	6%	8%	33%	35%
Pennsylvania	4%	6%	33%	31%
West Virginia	18%	19%	45%	22%

Source: Marilyn McCoy and D. Kent Halstead, *Higher Education Financing in the 50 States, Interstate Comparisons Fiscal Year 1978*, National Institute for Education, U.S. Government Printing Office, Washington, D.C., 1979.

The number of total enrollments per 1,000 persons age 18-24 years old, shown in Table C-8, is presented as a measure, although imperfect, of the portion of each state's primary pool of potential college enrollees which actually do enter college. It is an imperfect measure because it does not adjust for enrolled students from out-of-state, discussed above, nor does it adjust for those students who do not fit into the 18-24 year old bracket. Only two states in this grouping had fewer enrollments per 1,000 population within this age group than Pennsylvania.

TABLE C-8
Total Higher Education Enrollments Compared to Population Ages 18-24 Years — 1977 Pennsylvania and Ten States

	Total Enrollments	Population Ages 18-24[1]	Enrollments Per 1,000 Persons Ages 18-24
U.S.	1,285,787	28,687,000	393.4
California	11,743,243	3,026,000	576.1
Illinois	616,209	1,464,000	420.9
Indiana	224,992	709,000	317.3
Massachusetts	375,380	778.000	482.5
Michigan	481,767	1,263,000	381.4
New Jersey	301,091	868,000	346.9
New York	950,857	2,166,000	439.0
North Carolina	257,198	757,000	339.8
Ohio	452,754	1,429,000	316.8
Pennsylvania	475,659	1,433,000	331.9
West Virginia	81,121	212,000	382.6

[1]Figures for 1978; 1977 figures were unavailable.

Sources: U.S. Department of Health, Education and Welfare, National Center for Education Statistics, *Digest of Education Statistics 1979,* Government Printing Office, Washington, D.C.

U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the U.S. 1979,* Government Printing Office, Washington, D.C.

Current-Funds Revenues

While private institutions of higher education in the U.S. outnumber those classified as public, the revenues nationally of the private institutions totaled only about one-half those of public institutions, as shown in Table C-9. This general relationship held true for many of the states selected for comparison. While private institutions outnumbered public in eight of the 10 states, the revenues of the public insitutions exceeded those of the private in five of those states. In three of the five states the revenues of public institutions exceeded those of private by a factor of about two or more. In the states of Massachusetts, New York and Pennsylvania, the numbers as well as the total revenues of private institutions exceeded those of public institutions.

TABLE C-9
Total Current-Funds Revenues of Institutions of Higher Education and Percentage Public/Private — 1977

	Total ($ Millions)	Public	Private
U.S.	$43,715.6	67%	33%
California	5,944.6	75%	25%
Illinois	2,444.4	51%	49%
Indiana	963.4	75%	25%
Massachusetts	1,706.4	22%	78%
Michigan	1,655.1	87%	13%
New Jersey	974.1	65%	35%
New York	4,240.6	45%	55%
North Carolina	1,120.9	65%	35%
Ohio	1,665.3	73%	27%
Pennsylvania	2,335.7	49%	51%
West Virginia	205.0	82%	18%

Source: U.S. Department of Health, Education and Welfare, National Center for Education Statistics, *Financial Statistics of Institutions of Higher Education: Current Funds Revenue and Expenditures, Fiscal Year 1977, State Data,* Government Printing Office, Washington, D.C.

The revenues of all institutions of higher education grew nationally by 82 percent between 1971-77, with the revenues of the public institutions experiencing greater percentage growth. As shown in Table C-10, the growth of the revenues of the public institutions outpaced those of private institutions in most states, including Pennsylvania, during the period.

TABLE C-10
Percentage Growth of Current-Funds Revenues of Institutions of Higher Education Total and by Public/Private — 1971-77

	Total	Public	Private
U.S.	82.0%	88.3%	70.2%
California	103.8%	107.4%	93.9%
Illinois	72.3%	54.2%	96.1%
Indiana	57.6%	61.7%	46.3%
Massachusetts	56.8%	90.3%	49.2%
Michigan	66.1%	64.7%	75.9%
New Jersey	94.8%	114.2%	67.2%
New York	61.2%	72.1%	53.4%
North Carolina	83.5%	87.7%	76.1%
Ohio	63.6%	71.0%	46.4%
Pennsylvania	81.5%	86.5%	76.9%
West Virginia	36.8%	34.9%	46.3%

Source: U.S. Department of Health, Education and Welfare, National Center for Education Statistics, *Financial Statistics of Institutions of Higher Education: Current Funds Revenue and Expenditures, Fiscal Year 1971,* and *1977, State Data,* U. S. Government Printing Office, Washington, D.C.

The relative importance to institutions of higher education of their major sources of revenue for 1977 showed some variability from state to state, as shown in Table C-11. For the U.S. as a whole, tuition and fees supplied about one-fifth of all revenues, while revenues from government sources (including appropriations, grants and contracts) supplied slightly less than one-half. The remainder came from other sources (private gifts, endowment income, auxiliary enterprises, etc.).

TABLE C-11
Total Current-Funds Revenues of Institutions of Higher Education: Percentages by Source 1977

	Total	Tuition & Fees	Govt. Sources	Other
U.S.	100%	20.8%	47.6%	31.6%
California	100%	11.1%	53.4%	35.5%
Illinois	100%	20.3%	39.9%	39.8%
Indiana	100%	22.9%	40.1%	37.0%
Massachusetts	100%	33.6%	31.0%	35.4%
Michigan	100%	23.3%	47.9%	28.8%
New Jersey	100%	27.7%	44.8%	27.4%
New York	100%	31.5%	42.2%	26.3%
North Carolina	100%	15.8%	49.8%	34.3%
Ohio	100%	28.5%	39.8%	31.7%
Pennsylvania	100%	30.0%	33.9%	36.0%
West Virginia	100%	15.4%	57.8%	26.8%

Source: U.S. Department of Health, Education and Welfare, National Center for Education Statistics, *Financial Statistics of Institutions of Higher Education: Current Funds Revenue and Expenditures, Fiscal Year 1977, State Data,* Government Printing Office, Washington, D.C.

In California, tuition and fees supplied the smallest portion of total revenue among the 10 states, while in Massachusetts it supplied the most. Almost exactly the opposite was true for revenue from government sources. Undoubtedly, part of the reason for these differences lies in the historic mix of public/private institutions in these states.

In each of the 11 states except Massachusetts, revenue from government sources exceeded tuition and fees; the same was true in most states for "other" revenues (non-government contracts and grants, auxiliary activities and miscellaneous sources).

Current-Funds Expenditures

Current-Funds expenditure patterns of institutions of higher education, shown in Table C-12, are closely similar to revenue patterns shown in Table C-9. Expenditures in 1977 of all public institutions of higher education nationally were, like revenues, about twice as great as those of private institutions. Only in Pennsylvania, Massachusetts and New York did private institutions, in the aggregate, outspend their public counterparts.

TABLE C-12
Total Current-Funds Expenditures of Institutions of Higher Education and Percentage Public/Private — 1977

	Total ($ Millions)	Public	Private
U.S.	$42,874.5	67%	33%
California	5,729.4	74%	26%
Illinois	2,406.5	51%	49%
Indiana	954.9	76%	24%
Massachusetts	1,673.7	21%	79%
Michigan	1,640.9	87%	13%
New Jersey	949.8	65%	35%
New York	4,187.0	45%	55%
North Carolina	1,097.3	65%	35%
Ohio	1,638.3	73%	27%
Pennsylvania	2,313.4	49%	51%
West Virginia	202.3	82%	18%

Source: U.S. Department of Health, Education and Welfare, National Center for Education Statistics, *Financial Statistics of Institutions of Higher Education: Current Funds Revenue and Expenditures, Fiscal Year 1977, State Data,* Government Printing Office, Washington, D.C.

While expenditures of institutions of higher education in each of the states and the U.S. as a whole grew between 1971-77 at approximately the same rate as the growth in revenues, expenditure growth varied considerably between public and private institutions, as shown in Table C-13. Generally, there were great differences in the rates of growth for expenditures of public and private institutions. The growth of expenditures of private institutions tended to lag behind expenditure growth of public instiutions by greater margins than did their revenues. This was true for seven of the states surveyed, as well as the U.S. total.

TABLE C-13
Percentage Growth of Current-Funds Expenditures of Institutions of Higher Education Total and by Public/Private — 1971-77

	Total	Public	Private
U.S.	82.3%	90.8%	67.1%
California	104.1%	109.8%	89.0%
Illinois	71.6%	55.1%	92.8%
Indiana	60.1%	66.4%	43.1%
Massachusetts	54.9%	92.1%	47.1%
Michigan	66.3%	65.6%	71.1%
New Jersey	96.1%	118.4%	65.3%
New York	63.8%	87.1%	48.7%
North Carolina	87.0%	93.2%	76.3%
Ohio	61.7%	69.5%	44.0%
Pennsylvania	80.3%	85.1%	75.8%
West Virginia	42.7%	42.2%	45.0%

Source: U.S. Department of Health, Education and Welfare, National Center for Education Statistics, *Financial Statistics of Institutions of Higher Education: Current Funds Revenue and Expenditures, Fiscal Year 1971,* and *1977, State Data,* U. S. Government Printing Office, Washington, D.C., 1973 and 1979.

The largest object of expenditure of institutions in each of the states was educational and general expenditures, as shown in Table C-14. There tended not to be a great deal of variability among the states in the percentage of total expenditures composed of educational and general expenditures.

TABLE C-14
Total Current-Funds Expenditures of Higher Education Institutions by Object: Percentages 1977

	Total	Independent Operations	Auxiliary Enterprises & Educational & Gen. Expend.
U.S.	100%	77.9%	22.1%
California	100%	70.7%	29.2%
Illinois	100%	69.2%	30.8%
Indiana	100%	73.9%	26.1%
Massachusetts	100%	80.7%	19.3%
Michigan	100%	80.4%	19.6%
New Jersey	100%	79.3%	20.7%
New York	100%	84.3%	15.7%
North Carolina	100%	79.6%	20.4%
Ohio	100%	77.6%	22.5%
Pennsylvania	100%	74.0%	25.9%
West Virginia	100%	80.5%	19.4%

Source: U.S. Department of Health, Education and Welfare, National Center for Education Statistics, *Financial Statistics of Institutions of Higher Education: Current Funds Revenue and Expenditures, Fiscal Year 1977, State Data*, Government Printing Office, Washington, D.C.

APPENDIX D

METHODOLOGY DETAILS

To substantiate the findings of the Study, the following are details of the calculations, sources of data and assumptions utilized to arrive at the various measures of economic impacts presented in the body of the Report.

- Institutional Expenditures
- Employee Expenditures
- Direct Support Employees and Expenditures
- Student Expenditures
- Visitor Expenditures
- Total Payroll Attributable to Higher Education
- Institutional Cash Deposits
- Faculty and Staff Savings
- Student Savings
- Business Cash Deposits
- Aggregate Potential Credit Base Expansion
- Real Property Owned or Attributable to Higher Education
- Business Inventories Attributable to Higher Education
- Calculation of the Multiplier
- Table D-1 Calculation of Initial Impact of Institutional Purchases in Pennsylvania
- Table D-2 Expenditure Amounts
- Colleges and Universities Comprising the Data Base
- Table D-3 Institution-Related and Pennsylvania Data — by SMSA Regions
- Table D-4 Institution-Related Data — by Category of Institution
- Institutional Questionnaire

Institutional Expenditures

Institutional expenditures for non-capital goods and services purchased from businesses were calculated based on data reported by the institutions on the questionnaire that provided detail on the portions of these expenditures made in Pennsylvania in fiscal 1979-80.

In order to project the total amount of expenditures made for non-capital goods and services in Pennsylvania an expenditure per full-time equivalent (FTE) student was developed from the data reported on the questionnaire. The total projected expenditure was computed by multiplying the expenditure per FTE by the total FTE enrollment, as reported by the Pennsylvania Department of Education — Fall 1979.

The calculations were as follows:

Total and in-state expenditures for non-capital goods and services (obtained from questionnaires — 99 institutions responding)

Expenditure Object	Total Expenditure	Expenditure in Pa.
Utilities and heating	$107,149,451	$105,778,008
Communications	45,348,357	43,783,354
Insurance	71,709,642	63,710,739
Service Contracts	70,152,246	56,510,184
Rental/Lease Contracts	33,849,334	30,106,108
Printing and publishing	19,813,629	18,832,665
Travel and transportation	34,649,622	21,588,392
Other services	49,623,976	42,218,125
Purchases under state contracts	6,209,329	5,887,494
Purchases from retailers, distributors and manufacturers	287,431,233	222,834,746
Other purchases	173,764,178	132,950,215
TOTALS	$899,585,683	$744,200,030

FTE enrollment — questionnaire — 344,250

Expenditure per FTE student in Pennsylvania — $2,161.80

Total expenditure per FTE student — $2,613.18

Total FTE enrollment — Fall 1979 — 376,746

Projected expenditure for non-capital goods and services purchased in Pennsylvania — $814,449,503

Projected total expenditure for non-capital goods and services — $984,503,605

Employee Expenditures

Faculty and staff (includes professional staff and supportive personnel) personal expenditures were calculated using data provided by the institutions on the questionnaire, data provided by the case study institutions and other published state and federal government data.

In order to project the total personal expenditures made by employees of institutions of higher education average salaries for resident and non-resident faculty and staff employees (includes part-time employees) were computed for the institutions responding to the questionnaire. The percentages of faculty and staff personnel residing in Pennsylvania were also computed. Total employment for all institutions in the study group was obtained from the Pennsylvania Department of Education. The number of Pennsylvania resident employees and the total resident payroll were calculated. Total personal expenditures for goods and services were estimated using data from the federal government. Finally, the total personal expenditure made within Pennsylvania was determined based on results obtained from the case study institutions and other similar economic impact studies.

1. Data obtained from questionnaire (99 institutions responding — fiscal year 1979-80)

   A. Faculty

Total employed	35,361
Total payroll	$598,500,288
Average salary	$16,925
Total — Pa. residents	33,253
% Pa. residents of total	94%
Total payroll — Pa. residents	$568,970,137
Average salary — Pa. residents	$17, 110

   B. Staff

Total employed	42,906*
Total payroll	$448,181,346
Average salary	$10,445
Total — Pa. residents	41,183*
% Pa. residents of total	96%
Total payroll — Pa. residents	$434,783,419
Average salary — Pa. residents	$10,557

   *Includes some professional staff

2. Data obtained from Pennsylvania Department of Education (Fall 1980)[1]

Total professional staff	62,104
Total supportive personnel	39,869
Total Employment	101,973

3. Projection of total payroll and payroll for Pennsylvania resident employees.

Professional staff	62,104 × .94 =	58,378
Supportive personnel	39,869 × .96 =	38,274
Total	101,973	96,652

Projected resident payroll

Professional staff	58,378 × $17,110 =	$998,847,580
Supportive personnel	38,274 × $10,557 =	$404,058,618
Total		$1,402,906,198

Projected total payroll

Professional staff	62,104 × $16,925 =	$1,051,110,200
Supportive personnel	39,869 × $10,445 =	$ 416,431,705
Total		$1,467,541,905

[1]Pennsylvania Department of Education. *Our Colleges and Universities Today, Faculty and Other Personnel 1980-81*, Harrisburg: 1981

4. Projection of employee expenditures made in Pennsylvania.

Disposition of personal income by employees of institutions of higher education was assumed to approximate U.S. averages.

Total payroll — Pa. residents	$1,402,906,198
	× .844[1]
Total disposable income	$1,184,052,831
	× .955[1]
Total personal consumption expenditure	$1,130,770,453

Based on information provided by several case study institutions and information obtained from previously conducted economic impact studies at other institutions of higher education, it was estimated that 95 percent of total personal consumption expenditures would be made within Pennsylvania. Total personal consumption expenditures made at Pennsylvania businesses were calculated to be:

$1,130,770,453
× .95
$1,074,231,930

Direct Support Employees and Expenditures

In addition to those actually employed by institutions of higher education, others are employed in jobs directly related to the support of higher education in Pennsylvania. This group has been defined as those employed by the Pennsylvania Higher Education Assistance Agency, the (Pennsylvania) Higher Education Facilities Authority and a portion of the total employees of the Pennsylvania Department of Education.

The following information was supplied by the respective agencies.

	Total No. Employees	$ Payroll
PHEAA	373	$3,400,000
HEFA	12	163,372
PDE	198	2,272,994
TOTAL	583	$5,836,366

The projection of employee expenditures made in Pennsylvania by persons employed in jobs directly supporting higher education was calculated using the same methodology as used to determined expenditures made by employees of institutions of higher education.

Total payroll — direct support employees	$5,836,366
	× .844
Total disposable income	$4,925,893
	× .955
Total personal consumption expenditure	$4,704,228
	× .95
Total personal consumption expenditure at Pennsylvania businesses	$4,469,016

[1] *Economic Report of the President, January 1980*, Washington, D.C.: U.S. Government Printing Office, 1980, p. 228.

Student Expenditures

Student expenditures were calculated based on data reported by the institutions on the questionnaire that provided the estimated average annual (academic year) total cost of enrollment, exclusive of tuition and institution-provided room and board for full-time resident and non-resident undergraduate and graduate students.

The results obtained from the questionnaire were as follows: (99 institutions responding)

Pennsylvania resident students (full-time)

	Number	Expenditure Amount
Undergraduate	209,761	$261,250,094
Graduate	16,229	22,987,800
Total	225,990	$284,237,894

Out-of-State resident students (full-time)

Undergraduate	55,371	$ 56,081,403
Graduate	12,875	15,624,123
Total	68,246	$ 71,705,526

Total Students 294,236
Total Expenditure $355,943,420
Avg. expenditure per student = $\frac{\$355,943,420}{294,236} = \$1,209.72$

Total full-time student spending was calculated by multiplying the average expenditure per student by the number of full-time students enrolled at the institutions of higher education in Fall, 1979.

Total full-time student spending was:

319,792 × $1,209.72 = $386,859,098

The percentage of this expenditure made within Pennsylvania is estimated to be 95 percent. This was derived from information reported by the case study institutions and from other impact studies at other institutions.

The total expenditure in Pennsylvania by full-time students in 1979-80 was:

$386,859,098 × .95 = $367,516,143

Visitor Expenditures

Spending by visitors to institutions of higher education contributes to the overall impact of higher education on Pennsylvania's economy. This spending has a direct impact on tourist-related firms in Pennsylvania which represents a significant and growing segment of the economy.

The method used to determine the total number and total expenditure of visitors to all institutions was to have each institution estimate their number of visitors by certain categories (purpose of visit) for the academic year 1979-80. Average expenditures per visitor were to be developed by the case study institutions. Total visitor expenditures would be calculated using those figures.

The total number of visitors for the academic year 1979-80 at institutions of higher education in Pennsylvania as reported by those responding to the questionnaire is presented below.

Visitors to Pennsylvania's Institutions of Higher Education Academic year 1979-80

Purpose of Visit	Number of Visitors
Athletic events	1,890,910
Cultural events	1,752,286
Alumni functions	203,084
Prospective students	254,784
Conferences and seminars	417,947
Other	450,566
TOTAL	4,970,117

Data received on visitor expenditures from the case study institutions revealed a wide range among institutions in per visit expenditures. This range went from a low of $5.00 average expenditure per visit to a high $46.73 average expenditure per visit with a mean of $26.14. The range is indicative of the fact that visitor expenditures are a function of several factors including the distance traveled, the mode of travel, the duration of the visit, the cost of travel-related services in the area, the purpose of the visit and the proportionate mix in the number of visitors by category. The combination of these factors is unique to each institution. This prevents the calculation of any valid average expenditure given the information available and also precludes any projection of the number of visitors for those institutions not responding to the questionnaire.

That there is an impact to Pennsylvania's economy as a result of the expenditures made by visitors to Pennsylvania's institutions of higher education cannot be questioned. This impact contributes directly to business receipts and employment in Pennsylvania and in particular to those firms providing travel related services. To the extent that these visitors are from out-of-state locations their spending creates a net gain to the Pennsylvania economy.

The total spending by visitors probably exceeds $100 million but the calculation of that amount is not firm enough to include in reported total impacts. Information on the impact of visitor expenditures on local service areas can be obtained from the case study reports.

Total Payroll Attributable to Higher Education

The total payroll attributable to higher education in Pennsylvania was calculated by adding the total of institutional payroll, the total payroll of employees in jobs directly attributable to the support of higher education and the product of the number of employees in jobs as a result of higher education-related expenditures and the average earnings for non-agricultural employment in Pennsylvania in 1979.

Institutional payroll	$1,467,541,905
Direct support employees payroll	5,836,366
Payroll as a result of institution-related expenditures	972,938,744*
TOTAL	$2,446,317,015

*(74,876 × $12,994[1] = $972,938,744)

Institutional Cash Deposits

Institutional cash deposits for fiscal year 1979-80 were calculated based on the data reported by insititutions on the questionnaire which provided amounts of deposits made in Pennsylvania financial institutions and deposits made out-of-state. Ratios of total deposits to total revenues and additions were established and used to project the estimates of total deposits for all insitutions of higher education.

The calculations are as follows:

Data obtained from the questionnaire (99 institutions responding)

Total deposits in Pennsylvania	$ 316,259,064	(68.2%)
Total deposits out-of-state	146,752,849	(31.8%)
TOTAL	$ 463,011,913	
Total revenues and other additions	$3,018,853,506	
Total deposits as a percent of total revenues	15.3%	

Calculation of total deposits

Total revenues and additions (as reported to Pa. Dept. of Education — fiscal 1979-80)	$3,407,632,707
	× .153
TOTAL DEPOSITS	$ 521,367,804
Portion of total deposits held in Pennsylvania institutions	× .682
	$ 355,572,842

Faculty and Staff Savings

The total value of savings and checking accounts held on deposit by full-time faculty and staff members was calculated using data obtained by direct questionnaire by the case study institutions. An average balance per employee was determined and multiplied by the total number of full-time employees to arrive at the total deposit.

The average combined checking and savings account balance maintained by full-time faculty and staff in Pennsylvania financial institutions was $4,418.00

The total full-time faculty and staff (professional staff and supportive personnel) at Pennsylvania institutions of higher education in 1980 was 77,532.

Total full-time faculty and staff combined checking and savings account balances of deposit in Pennsylvania was estimated to be $342,536,376.

Student Savings

The total value of savings and checking accounts held on deposit in Pennsylvania by full-time students was calculated using data obtained by direct questionnaire by the case study institutions. An average balance per student

[1]Obtained from unpublished data — Pennsylvania Office of Budget and Administration, Econometrics and Demographics Division.

was determined and multiplied by the total number of full-time students enrolled in the Fall of 1979 to arrive at the total on deposit.

The average combined checking and savings account balance maintained by full-time students in Pennsylvania financial institutions was $533.00.

The total full-time enrollment for institutions of higher education in Pennsylvania for Fall, 1979, was 319,792.

Total full-time student combined savings and checking account balances on deposit in Pennsylvania was:

319,792 × $533.00 = $170,449,136

Business Cash Deposits

Businesses maintain cash deposits in financial institutions that are used to meet current expenditures and to serve as reserves for future or extraordinary expenses.

The total value of these deposits was calculated by multiplying the total business volume generated as a result of direct or induced spending by institutions of higher education by the cash-to-business-volume ratio.

The cash-to-business-volume ratio was obtained from data reported by the Federal Trade Commission *Quarterly Financial Report* series for retail and wholesale trade. The cash-to-business-volume ratio was 7.1 percent.

Total business cash deposits as a result of total business volume generated by higher education was $3,820,526,540 × .071[1] = $271,257,384.

Aggregate Potential Credit Base Expansion

The total expansion of the credit base in Pennsylvania as a result of total institution-related deposits was calculated by multiplying this amount by one minus the legal reserve requirement.

Based on recommendations from the Pennsylvania Department of Banking, the reserve requirement was determined to be three percent of the first $25 million of deposits and 12 percent for any amount above $25 million.

Total institution-related deposits $1,139,815,738

Total potential credit base expansion

$25,000,000 × .97 = $24,250,000
$1,114,815,738 × .88 = $981,037,849
$1,005,287,849

Real Property Owned or Attributable to Higher Education

The total value of real property owned by or attributable to higher education in Pennsylvania at the end of fiscal year 1979-80 was calculated by adding the book value of land and the replacement value of buildings owned by the institutions and the proportion of market value of commercial real property in Pennsylvania in 1980 in existence as a result of institution-related expenditures.

Book value — land	$ 181,693,212
Replacement value — buildings	7,307,531,666
Total real property owned by institutions	$7,489,224,878

The market value of commercial property attributable to higher education was calculated by multiplying the percentage of institution-related business volume to total business volume by the total market value of commercial real property in Pennsylvania.

The market value of commercial real property in Pennsylvania was found by dividing the assessed value of commercial property in Pennsylvania by the average assessment ratio.[2]

Assessed value — commercial property in Pennsylvania	$ 6,482,756,462
Average assessment ratio	+ .259
Estimated market value	$25,029,946,000
Ratio of higher education-related retail, wholesale and service industry sales in Pennsylvania	× .03
Estimated market value of commercial property attributable to higher education-related expenditures	$ 750,898,380
Total real property — institutions	$ 7,489,224,878
Total real property — commercial attributable to higher education	750,898,380
Total real property attributed to higher education	$ 8,240,123,258
Total market value of real property in Pennsylvania (1980)	$113,514,990,700[3]

Business Inventories Attributable to Higher Education

The total value of inventories attributable to higher education was found by multiplying the total business volume in Pennsylvania as a result of higher education-related expenditures by the inventory-to-sales ratio for retail and wholesale businesses.

[1] Federal Trade Commission, Quarterly Financial Report for Manufacturing, Mining and Trade Corporation. Fourth Quarter 1980, Washington, D.C.: U.S. Government Printing Office, 1981, pp. 79-81.

[2] State Tax Equalization Board, 1980 *Market Value of Real Property.*

Total institution-related business volume in Pennsylvania	$3,820,526,540
Inventory-to-sales	× .428
Estimated inventory value	$1,635,185,35[illegible]

Calculation of the Multiplier

The multiplier is used to calculate the expansion of money through respending as the result of initial spending from a single source. The final impact of the initial expenditure will be some multiple of that expenditure. It is based upon the percent of each dollar spent within a designated area that is respent within that area in the successive rounds of spending.

The calculations are primarily based on the findings of a study of multipliers used in economic impact studies at institutions of higher education.[1] The multiplier used is actually the ratio of the value added by initial institution-related spending and the value added by induced consumer respending. For the purposes of theses calculations, value added is equated to payroll as a percentage of sales. The methodology is based on the assumption that the mix of purchases of goods and services from businesses made by the institution and the proportion of those purchases made in Pennsylvania would be different than the mix and the proportion of purchases made by individuals. A second assumption is that the mix and proportion of purchases made by faculty and staff members and by other Pennsylvania residents (in the respending rounds) would be similar.

The formula used to calculate the multiplier (m) is:

$$m = 1 + \frac{r}{1-s}$$

where:

r = ratio of initial local spending to total spending (of institutions and individuals)

s = ratio of induced local spending to initial local spending

The calculations were as follows:

1. Total institutional purchases in Pennsylvania (see Table D-2) $814,449,503
2. Payroll to sales ratio for institutional purchases (see Table D-1) .197
3. Payroll generated by institution purchases in Pennsylvania (see Table D-1) $160,446,552
4. Total spending in Pennsylvania by institutional employees, direct support employees and students $1,446,216,089
5. Portion of total payroll spent in Pennsylvania .766
6. Calculation of r
   a. Spending in Pa. as a result of institutional spending (#3 × #5) $122,902,059
   b. Total spending in Pa. (#4 + #6a) $1,569,119,148
   c. Total spending — institution employees and students (see Table D-2) $2,506,837,384
   d. r = initial local spending divided by total spending (#6b/#6c) .626
7. Calculation of s
   a. Payroll to sales ratio for Pa. Retail trade .121
   b. Payroll generated from total institution-related spending (#6b × #7a) $189,863,417
   c. Induced Pa. spending (#7b × #5) $145,435,377
   d. s = induced Pa. spending divided by initial local spending (7c/6b) .093

$$m = 1 + \frac{r}{1-s} \qquad m = 1 + \frac{.626}{.907} \qquad m = 1.69$$

[1] Charles D. Salley, *Georgia State University Spending Patterns and the Atlanta Economy*. Atlanta: Georgia State University, December, 1976

TABLE D-1
Calculation of Initial Impact of Institutional Purchases in Pennsylvania

Item	In-State[1] Purchases	Payroll/Sales[2] Ratio	Payroll Generated
Utilities	$105,778,008	.159	$16,818,703
Communications	43,783,354	.372	16,287,408
Insurance	63,710,739	.116	7,390,446
Service Contracts	56,510,184	.439	24,807,971
Rental/Lease Contracts	30,106,108	.121	3,642,839
Printing/Publishing	18,832,665	.583	10,979,444
Travel/Transportation	21,588,392	.248	5,353,921
Other Services	42,218,125	.414	17,478,304
State Contracts	5,887,494	.121	712,387
Retail/Wholesale	222,834,746	.121	26,963,004
Other	132,950,215	.121	16,086,976
TOTAL	$744,200,030	.197	$146,521,403

Projected total in-state purchases = $814,449,503
Projected payroll generated = $814,449,503 × .197 = $160,446,552

TABLE D-2
Expenditure Amounts[3]

	In-State Expenditures	Total Expenditures
Institutions	$814,449,503	$984,503,605
Faculty/Staff	1,074,231,930	1,130,770,453
Direct support employees	4,469,016	4,704,228
Students	367,516,143	386,859,098
TOTAL	$2,260,666,592	$2,506,837,384

[1]Data obtained from questionnaires — 90 institutions responding
[2]U.S. Department of Commerce, *County Business Patterns 1978 for Pennsylvania*. Washington, D.C.: U.S. Government Printing Office, September, 1980.
[3]Source: Pages D-1 through D-7.

COLLEGES AND UNIVERSITIES COMPRISING THE DATA BASE

Private Colleges and Universities

Albright College
Allegheny College
Beaver College
Bryn Mawr College
Cedar Crest College
Allentown College of St. Francis de Sales
Bucknell University
Cabrini College
Carnegie-Mellon University
Chatham College
College Misericordia
Dickinson College
Dickinson School of Law
Duquesne University
Eastern College
Elizabethtown College
Gannon University
Gettysburg College
Grove City College
Haverford College
Holy Family College
Immaculata College
Juniata College
Kings College
Lafayette College
La Roche College
La Salle College
Lebanon Valley College
Lehigh University
Lycoming College
Marywood College
Mercyhurst College
Messiah College
Moravian College
Carlow College
Muhlenberg College
Neumann College
Widener University
Philadelphia College of Bible
Philadelphia College of Pharmacy and Science
Philadelphia College of Performing Arts
Robert Morris College
St. Francis College
St. Joseph's University
St. Vincent College
Seton Hill College
Spring Garden College
Susquehanna University
Swarthmore College
Thiel College
University of Scranton
Ursinus College
Valley Forge Christian College
Villa Maria College
Villanova University
Washington and Jefferson College
Waynesburg College
Westminster College
York College of Pennsylvania
Gwynedd-Mercy College
Point Park College
Lancaster Bible College

Private, State-Aided

Delaware Valley College of Science and Agriculture
Drexel University
Pennsylvania College of Optometry
Pennsylvania College of Podiatric Medicine
Philadelphia College of Art
Philadelphia College of Textiles and Sciences
Thomas Jefferson University
University of Pennsylvania
Dickinson School of Law

State Colleges and Universities

Bloomsburg State College
California State College
Cheyney State College
Clarion State College
East Stroudsburg State College
Edinboro State College
Indiana University of Pennsylvania
Kutztown State College
Lock Haven State College
Millersville State College
Shippensburg State College
Slippery Rock State College
West Chester State College

State-related Universities

Lincoln University
Pennsylvania State University
Temple University
University of Pittsburgh

Community Colleges

Community College of Allegheny College
Harrisburg Area Community College
Montgomery County Community College
Community College of Philadelphia
Bucks County Community College
Williamsport Area Community College
Community College of Beaver County
Northampton County Area Community College
Lehigh County Community College
Delaware County Community College
Westmoreland County Community College
Reading Area Community College

APPENDIX TABLE D-3

Pennsylvania Colleges and Universities Economic Impacts
Institution-Related and Pennsylvania Data — By SMSA Regions
(Dollars in Millions)

	Outside SMSA	#1	#2	#3	#4	#5
Pa. Data (1979-80)						
Total Employment[1]	932,753	216,400	-	115,900	207,300	98,560
Total Non-Agric. Labor & Prop. Income[2]	$12,157	$3,795	-	$1,831	$3,400	$1,469
Total Retail, Wholesale & Select. Serv. Industry Sales[3]	$16,711	$5,002	-	$2,104	$5,265	$1,811
Institution-Related Data[4] (1979-80)						
Full-Time Student Expenditures	$ 107	$ 12	-	$ 8	$ 10	$ 1
Resident Employee Expenditures	$ 200	$ 31	-	$ 17	$ 21	$ 2
Institution Purchases In Region	$ 48	$ 20	-	$ 9	$ 7	$ 1
Total Expenditures	$ 354	$ 63	-	$ 35	$ 37	$ 4
× Multiplier	1.6	1.6	-	1.6	1.6	1.6
Total Attributable Expenditures	$ 567	$101	-	$ 56	$ 60	$ 7
% of Total Retail, Wholesale & Selec. Serv. Ind. Sales SMSA.	3.4%	2.0%	-	2.7%	1.1%	0.4%
Total Employees	18,877	2,896	-	1,278	1,716	240
Total Attributable Employment	30,422	4,889	-	2,389	2,923	380
% of Total SMSA Employment	3.3%	2.3%	-	2.1%	1.4%	0.4%
Total Payroll	$ 262	$ 41	-	$ 22	$ 27	$ 3
Total Atrib. Payroll	$ 402	$ 63	-	$ 35	$ 42	$ 4
% of Total SMSA Labor & Proprietors Income	3.3%	1.7%	-	1.9%	1.2%	0.3%

[1]Source: *Pennsylvania Business Survey* (SMSA #1 and #8 adjusted to include Pa. totals only)
[2]Source: *1980 Business Pennsylvania Abstract*, Table 95 (1978 data projected to 6/80)
[3]Source: *1980 Pennsylvania Abstract*, Tables 47, 49 and 51 (1978 data projected to 12/80)
[4]Data from institutional responses to questionnaire — 99 institutions responding — not projected for all institutions.

#6	#7	#8	#9	#10	#11	#12
168,600	259,700	1,579,800	1,018,600	143,700	46,700	163,000
$2,242	$3,346	$27,328	$16,931	$2,093	$713	$2,334
$3,376	$5,103	$47,465	$32,568	$2,877	$908	$3,296
$ 4	$ 10	$ 120	$ 54	$ 6	$ 3	$ 3
$ 18	$ 26	$ 325	$ 216	$ 16	$ 7	$ 8
$ 4	$ 10	$ 360	$ 888	$ 5	$ 2	$ 1
$ 26	$ 47	$ 806	$ 359	$ 27	$ 12	$ 12
1.6	1.6	1.6	1.6	1.6	1.6	1.6
$ 41	$ 76	$ 1,289	$ 574	$ 43	$ 20	$ 20
1.2%	1.5%	2,7%	1.8%	1.5%	2.2%	0.6%
1,098	2,132	32,312	15,417	875	908	518
1,939	3,649	57,124	26,877	1,748	1,304	928
1.2%	1.4%	3.6%	2.6%	1.2%	2.8%	0.6%
$ 19	$ 28	$ 383	$ 228	$ 17	$ 7	$ 9
$ 29	$ 46	$ 634	$ 360	$ 27	$ 12	$ 14
1.3%	1.4%	2.3%	2.1%	1.3%	1.7%	0.6%

APPENDIX TABLE D-4

Pennsylvania Colleges and Universities Economic Impacts Institution-Related Data (1979-80) by Category of Institution (Dollars in Thousands)

Item	Institution Class			
	Private & State-Aided	State-Owned	State-Related	Community Colleges
Total Inst. Expend. in Pennsylvania	$ 462,607	$ 69,228	$ 245,149	$ 35,021
Full-time Student Expend. in Penna.	125,485	52,471	135,939	52,733
Faculty/Staff Expend. in Pennsylvania	518,744	105,159	379,440	68,701
Total Expend. in Pa.	$1,106,836	$226,858	$ 760,528	$156,455
× Multiplier	×1.69	× 1.69	× 1.69	× 1.69
Total Expend. in Pa. Attrib. to Higher Ed.	$1,870,552	$383,390	$1,285,292	$264,409
Percent of Total	49.1%	10.1%	33.8%	7.0%
Percent of Total Retail, Wholesale and Selected Service Industry Sales for Pa.	1.5%	0.3%	1.1%	0.2%
Total Employees	50,713	9,515	35,401	6,344
Total Employment in Pa. Attributable to Higher Education	85,885	16,931	64,364	11,574
Percent of Total	48.0%	9.5%	36.0%	6.5%
Percent of Total Employment in Penna.	1.7%	0.3%	1.3%	0.2%
Faculty/Staff Payroll	$ 729,811	$136,930	$509,456	$ 91,297
Total Payroll Attrib. to Higher Education	$1,186,836	$233,294	$885,931	$159,256
Percent of Total	48.1%	9.5%	35.9%	6.5%
Percent of Total Non-Agric. Labor and Proprietor's Income in Pa.	1.5%	0.3%	1.1%	0.2%
Total Full-time Equiv. Enrollment	156,669	66,251	104,128	49,668
Percent of Total	41.6%	17.6%	27.6%	13.2%

PENNSYLVANIA HIGHER EDUCATION ECONOMIC IMPACT STUDY QUESTIONNAIRE

Introduction

The following information is to be used as part of a study to determine the economic impact of higher education in Pennsylvania. The study is being conducted for the Pennsylvania Association of Colleges and Universitites (PACU), the Pennsylvania Higher Education Assistance Agency (PHEAA) and the State Board of Education by the Pennsylvania Economy League.

Each four-year college or university and all community colleges in the state will be receiving this questionnaire and will be requested to answer it as accurately as possible. The information obtained will be kept confidential and will be presented in aggregate form in the study report, scheduled for completion in mid-1981.

Much of the information requested in the questionnaire should be available readily from your internal records. Whenever possible, the questions were developed to request information in a manner similar to that already required for some other purpose (e.g., HEGIS reporting). However, it is recognized that some of the information sought will have to be derived or estimated. It is most important that you try to obtain this information using as much factual material and logical reasoning as you can to enhance its accuracy. Institutions with multi-campus operations should use combined data when formulating responses for this questionnaire.

Both definitions and methods for deriving some of the information requested are included in the instructions to the questionnaire. However, should you require any clarification or have any questions on any aspects of this study or its intended use, please feel free to contact Bob Greenwood of the Pennsylvania Economy League at (717) 234-3151.

The success of this study will depend upon the quality of responses received. We therefore, request that you devote as much time as possible to completing this questionnaire and returning it promptly. We would appreciate receiving your completed response by April 30, 1981.

I. General Information

A. Name of Institution _____
PHEAA Institutional Code #_____

B. Location of Main Campus:

Please indicate the name and number of the county in which the main campus is located. A list of county names and numbers is provided.

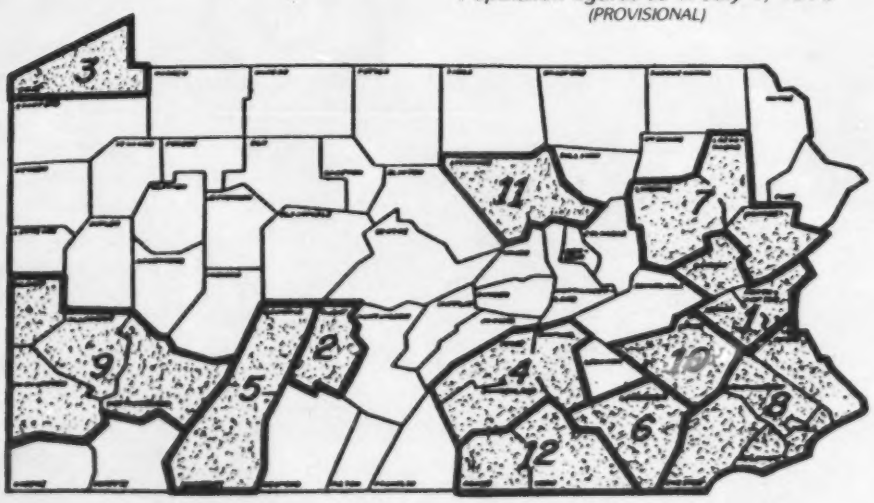
County_____ County #_____

Please indicate if the main campus is situated within the boundaries of a Standard Metropolitan Statistical Area (SMSA) and if so, which SMSA it is. A map of the SMSA's is provided.

SMSA _____ (yes) _____ (no) SMSA #_____

Standard Metropolitan Statistical Area SMSA's in Pennsylvania

Population figures as of July 1, 1976
(PROVISIONAL)



STANDARD METROPOLITAN STATISTICAL AREAS

1.	Allentown-Bethlehem-Easton, Pa.-N.J.	542,100
2.	Altoona, Pa.	133,800
3.	Erie, Pa.	275,000
4.	Harrisburg, Pa.	428,600
5.	Johnstown, Pa.	268,000
6.	Lancaster, Pa.	345,200
7.	Northeast Pennsylvania	635,000
8.	Philadelphia, Pa. (Pa. portion)	3,802,100
9.	Pittsburgh, Pa.	2,306,300
10.	Reading, Pa.	305,900
11.	Williamsport, Pa.	115,300
12.	York, Pa.	351,500

COUNTIES

1	Adams	18	Clinton	35	Lackawanna	52	Pike
2	Allegheny	19	Columbia	36	Lancaster	53	Potter
3	Armstrong	20	Crawford	37	Lawrence	54	Schuylkill
4	Beaver	21	Cumberland	38	Lebanon	55	Snyder
5	Bedford	22	Dauphin	39	Lehigh	56	Somerset
6	Berks	23	Delaware	40	Luzerne	57	Sullivan
7	Blair	24	Elk	41	Lycoming	58	Susquehanna
8	Bradford	25	Erie	42	McKean	59	Tioga
9	Bucks	26	Fayette	43	Mercer	60	Union
10	Butler	27	Forest	44	Mifflin	61	Venango
11	Cambria	28	Franklin	45	Monroe	62	Warren
12	Cameron	29	Fulton	46	Montgomery	63	Washington
13	Carbon	30	Greene	47	Montour	64	Wayne
14	Centre	31	Huntingdon	48	Northampton	65	Westmoreland
15	Chester	32	Indiana	49	Northumberland	66	Wyoming
16	Clarion	33	Jefferson	50	Perry	67	York
17	Clearfield	34	Juniata	51	Philadelphia		

C. Enrollment:

Please list your enrollment as of Fall, 1980 as reported for HEGIS. Please show these numbers broken down by in-state and out-of-state students.

	Full Time	Part Time	Full-Time Equivalent
1. Undergraduate			
a. in-state students	_____	_____	_____
b. out-of-state students	_____	_____	_____
2. Graduate			
a. in-state students	_____	_____	_____
b. out-of-state students	_____	_____	_____
3. Non-degree	_____	_____	_____
a. in-state students	N/A	_____	_____
b. out-of state students	N/A	_____	_____

D. Student housing:

Please list student housing information for students enrolled full-time as of fall, 1980.

	Number of Students
1. College-provided housing	_____
2. Rental housing	_____
3. Fraternity/Sorority	_____
4. Parent or relative	_____
5. Own own home	_____
6. Other	_____

E. Estimated average annual cost of enrollment:

Please provide the estimated average annual (academic year) total cost of enrollment, including tuition, room and board, fees, books, other necessities, entertainment, etc., for a full-time student (usually calculated by the Financial Aid Office).

	Tuition	Room & Board	Other Expenses
In-State Resident:			
1. Graduate	$ _____	$ _____	$ _____
2. Undergraduate	$ _____	$ _____	$ _____
Out-of-State Resident:			
1. Graduate	$ _____	$ _____	$ _____
2. Undergraduate	$ _____	$ _____	$ _____

F. Financial Aid:

Please list the totals for all forms of student financial assistance, including scholarships, fellowships, work/study, grants, and student loans for fiscal year 1979-80.

	Grants and Scholarships	Loans
1. Federal government	$_____	$_____
2. Pennsylvania	$_____	$_____
3. Other States	$_____	$_____
4. Local government	$_____	$_____
5. From the institution	$_____	$_____
6. Other (corporate, private, etc.)	$_____	$_____

G. Visitors:

Please estimate the annual number of visitors visiting the institution. *Do not* include currently enrolled students in any of these numbers.

1. Athletic events_____
2. Cultural events (theater, concerts, exhibits, etc.)_____
3. Alumni functions_____
4. Prospective students_____
5. Conferences and seminars_____
6. Other_____

H. Research and public services:

On a separate sheet, please list and describe the types of research and public services formally organized and sponsored either externally or by the institution that directly benefit either business and industry, agriculture, or government. Public services should be those established to provide noninstructional services beneficial to the above mentioned groups. Such services would include, but not be limited to, research projects, training, technical, and management consulting, laboratory testing, general advisory services, conferences and institutes, and cooperative extension efforts. Please include an estimate of the number of employees primarily engaged in the performance of these activities and the total annual expenditure for these services for fiscal year 1979-80.

I. Cash and Investments:

Please provide the following information (all funds combined) for fiscal year 1979-80.

1. Average monthly balance of demand deposits, time deposits, CD's and notes.
   a. on deposit at local institutions $_____
   b. on deposit at non-local institutions in Pennsylvania $_____
   c. on deposit out-of-state $_____
2. End-of-year book value of stocks, bonds, and other securities $_____
3. End-of-year market value of stocks, bonds, and other securities $_____

J. Book value of land, buildings and capital equipment as of end-of-year fiscal 1980:

1. Land $_____
2. Buildings $_____
3. Equipment $_____

K. Total outstanding debt:

Please list the total of outstanding direct debt (total debt less sinking fund balance) of the institution as well as that portion of the debt owed to in-state lenders, the federal government, and other sources as of end-of-year fiscal 1980. *Do not* include the debt of any Authority or General Obligation Bonds issued by any public agency.

1. From in-state lenders $_____
2. Federal loans $_____
3. Other $_____

L. Annual capital expenditures:

Please list the actual annual capital expenditures for new facilities and renewal and replacement for fiscal years 1975-76 through 1978-79.

Fiscal Year	Land and Buildings	Equipment
1975-76	$_____	$_____
1976-77	$_____	$_____
1977-78	$_____	$_____
1978-79	$_____	$_____

II. Revenues and Other Additions

The following section requests information relating to fund additions received by the institution in fiscal year 1979-80. Most of this information should be available from either the "Statement of Changes in Fund Balances" or the "Statement of Current Funds, Revenues, Expenditures and Other Changes".

A. Total revenues and other additions:

Please show the total of all funds received in fiscal 1979-80, whether expended or not. NOTE: Items B through I in this section should total to this amount $_____

Please explain on a separate sheet if there is more than a five percent difference between the total of items B through I and this amount.

B. Tuition and fees:

Please list the total of all tuition and fees assessed against students for educational purposes for fiscal year 1979-80. *Do not* include charges for room and board or other services rendered by auxiliary enterprises.

1. Tuition and fees from in-state students $_____
2. Tuition and fees from out-of-state students $_____

C. Government appropriations:

Please list those funds appropriated by governmental sources through legislative acts for fiscal year 1979-80. This would not include grants or contracts. Appropriations should be listed by the government level of the legislative body funding the appropriation.

1. Federal
   a. Direct payments to school $_____
   b. Federal funds distributed through other levels of government $_____
2. State $_____
3. Local $_____

D. Government grants and contracts:

Please list all funds received from, or made available by government agencies for specific projects or programs, including student aid for fiscal year 1979-80. However, *do not* include student aid awarded to *individual* students by the state.

1. Federal
   a. Restricted $_____
   b. Unrestricted $_____
2. Pennsylvania
   a. Restricted $_____
   b. Unrestricted $_____
3. Local
   a. Restricted $_____
   b. Unrestricted $_____
4. Foreign and other states
   a. Restricted $_____
   b. Unrestricted $_____

E. Private gifts, grants, and contracts:

Please list all amounts received by the institution or by an independent entity representing the institution from governmental organizations or individuals for fiscal year 1979-80. Also, please estimate to the best of your ability the portion of these amounts received from in-state sources.

1. Individuals and estates
   a. Restricted
      1. total $_____
      2. estimated portion from in-state sources $_____
   b. Unrestricted
      1. total $_____
      2. estimated portions from in-state sources $_____

2. Corporations
   a. Restricted
      1. total $_____
      2. estimated portion from in-state sources $_____
   b. Unrestricted
      1. total $_____
      2. estimated portion from in-state sources $_____
3. Foundations
   a. Restricted
      1. total $_____
      2. estimated portion from in-state sources $_____
   b. Unrestricted
      1. total $_____
      2. estimated portion from in-state sources $_____

F. Income from current, plant, loan, endowment and similar or other funds deposited or invested:

Please list all income (interest, dividend, royalty and rental) earned by these funds in fiscal 1979-80.

1. Annual interest, dividend, royalty and rental income $_____
2. Estimated portion earned from in-state sources $_____
3. Net gain from sales of investments $_____

G. Sales and services rendered:

1. Educational activities:

   Please list the amount of all funds derived from the sale of goods or services in fiscal year 1979-80 that are incidental to the conduct of instruction, research or public services; e.g. films, publications, seminars, testing, non-enrolled and non-degree students, etc. Estimate that portion of these funds that are derived from in-state customers.

   a. Total $_____
   b. Estimated portion from in-state sources $_____

2. Auxiliary enterpises (excluding hospitals):

   Please list the amount of all funds derived from the sale of goods or services for the following auxiliary enterprises in fiscal year 1979-80.

   a. Dormitories/Faculty housing $_____
   b. Food service $_____
   c. Student health service $_____
   d. Student stores and services $_____
   e. Athletic events $_____
   f. Hotels and lodging $_____
   g. Other — conference fees, etc. (Please list any enterprises that generate revenues of $5,000 or greater) $_____

3. Hospitals, clinics, and medical centers:

   Please list all funds directly attributable to the operation of a hospital in fiscal year 1979-80. This would not include those funds derived from grants, gifts, appropriations or endowment income. Estimate that portion of these funds that are received from in-state sources

   a. Total $_____
   b. Estimated portion from in-state sources $_____

4. Computer centers:

   Please list revenues received from customers using computer center facilities in fiscal year 1979-80. Estimate that portion of funds recieved from in-state sources.

   a. Total $_____
   b. Estimated portion from in-state sources $_____

H. Independent operations:

Please list funds received from those operations (as defined in HEGIS) which are independent of, or unrelated to the primary mission of the institution in fiscal year 1979-80.

1. Total $_____
2. Estimated portion from in-state sources $_____

I. Other additions and revenues:

Please show the total of all other additions to fund groups not included in one of the categories described above in fiscal year 1979-80 (such as from the sale of plant and facilities, etc.) $_____

III. Expenditures and Other Deductions

The following section requests information concerning fund deductions by the institution for fiscal year 1979-80. This section of the questionnaire is structured such that item G (Non-capital goods and services purchased from businesses) can be derived from total expenditures. The derivation of this item is of crucial importance to the study. It provides part of the basis for computing the economic impact of institutions of higher education on businesses in the state.

A. Total current expenditures:

Please show the total of all expenditures during fiscal 1979-80 by the institution from the Current Fund. NOTE: Items B through G in this section should total to this amount. $_____
Please explain on a separate sheet if there is more than a five percent difference between the total of Items B through G and this amount.

B. Payroll:

Please provide payroll information, showing gross payroll (before taxes and excluding fringes) for in-state and out-of-state employees for fiscal year 1979-80.

	Residing In-State	No.	Residing Out-of-State	No.	
1. Faculty	$_____	_____	$_____	_____	
2. Staff	$_____	_____	$_____	_____	
3. Other	$_____	_____	$_____	_____	
TOTAL	$_____	+	$_____	=	$_____

C. Employee Benefit Payments:

Please provide the amount of employer-paid payroll taxes for fiscal 1980.

FICA $_____
Unemployment Compensation $_____
Other $_____

D. Employer's expenditures for employee retirement plans (not including employer's share of social security) for fiscal year 1979-80.

1. Paid to or deposited at in-state institutions (includes State Employees Retirement System) $_____
2. Paid to or deposited at out-of-state institutions $_____

E. Payments of taxes and fees to governments:

Please provide the amounts of taxes and fees paid to any government in fiscal year 1979-80. Taxes would include sales tax on purchases related to noninstructional activities, any real estate taxes, etc. Fees would consist of payment to a governmental entity of charges for services such as police and fire protection, trash removal, street lighting, sewage, etc. *Do not* include payroll taxes.

	Taxes		Fees		
1. Federal	$_____		$_____		
2. Pennsylvania	$_____		$_____		
3. Other states	$_____		$_____		
4. Local	$_____		$_____		
5. Foreign	$_____		$_____		
TOTAL	$_____	+	$_____	=	$_____

F. Financial aid:

Please list all expenditures from current funds for student financial assistance, including scholarships, fellowships and grants for in-state and out-of-state students for fiscal year 1979-80. Included here would be the expenditure of any funds that were considered revenues or additions when they were received by the institution. Also, please estimate the unduplicated number of students receiving financial aid.

1. In-state recipients No._____ $_____
2. Out-of-state recipients No._____ $_____

G. Non-Capital goods and services purchased from businesses:

Please list the expenditures for non-capital purchases from businesses during fiscal 1979-80. It is most important that you try and derive the in-state and local portions of these amounts using as much factual information as possible. The listing of expenditure objects presented below is intended to group all purchases into a few categories to make the calculations more manageable. Generally, large expenditure categories that involve few vendors and are more easily determined are listed first.

All "local" expenditures must be, for the purpose of this study, made within Pennsylvania. The estimated local expenditure should be derived as follows: If your main campus is located within an SMSA local expenditures would be those made within that SMSA; and if your main campus is not located within an SMSA please indicate those counties containing what you would consider to be your local area of influence and make your estimates based on that area. NOTE: If you are located within an SMSA but feel that its boundaries do not adequately contain your local area, please indicate the additional counties needed to contain your local area and make your estimates based on that area.

Local Area Counties _____

Expenditure Object	Total	Est. Total In-State	Est. Total Local
1. Utilities and heating (include all payments made for electric, gas, oil, coal, water, steam, etc.) *Do not* include any amounts already accounted for in Section III E.	$_____	_____%	_____%
2. Communications (include all payments for telephone, telex, advertising, postage, etc.)	$_____	_____%	_____%
3. Insurance (include all payments of insurance premiums for liability, fire, life, accident, theft, auto, workmen's compensation, medical, malpractice, and all other insurance obtained from private carriers. NOTE: Included here would be all employer-paid insurance premiums made that are part of the employee fringe benefit package with the exception of those already accounted for in Item D above.)	$_____	_____%	_____%
4. Service Contracts (include all payments for service contracts with companies for such services as housekeeping, maintenance, security, food, accountants, etc.)	$_____	_____%	_____%
5. Rental/Lease Contracts (include all payments made under rental/lease contracts for office equipment, copier equipment, vehicles, outside computer services, etc. Also include any office, classroom or housing rental costs.)	$_____	_____%	_____%
6. Printing & Publishing (include all payments made for printing and publishing costs incurred. This would *not* include newspaper advertising or any reproduction costs already accounted for in the copier equipment charges.)	$_____	_____%	_____%
7. Travel & Transportation (include all payments made by the institution for faculty, staff, student or visitor travel expenditures.)	$_____	_____%	_____%
8. Other Services (include all payments made for services rendered by those not on yearly or longer-termed contracts such as repairmen, consultants, etc,)	$_____	_____%	_____%

9. Purchases through state contracts (include total amount of supplies and materials purchased through the Department of General Services.) $_____ _____% _____%

10. Purchases from retailers, distributors and manufacturers (include all payments made from establishments for goods used for any purpose and not included above.) $_____ _____% _____%

11. Other (include any other payments for goods or services purchased and not included in any of the above categories.) $_____ _____% _____%

12. TOTAL NON-CAPITAL GOODS & SERVICES
(Total dollar amounts of numbers 1 through 11 of Item G) $_____

H. Capital expenditures:

Please list the actual capital expenditures for new facilities and renewal replacement for fiscal year 1979-80 and estimate that portion of those expenditures for equipment that was made from in-state suppliers.

	Building and Land	Equipment Amount	% In-State	Total
1979-80	$ _____	$ _____	_____%	$ _____

I. Debt service for fiscal year 1979-80:

Please list the amount paid on indebtedness during the fiscal year. Also inlcude any rental payments made to a state or local agency for facilities constructed or obtained using proceeds from the sale of General Obligation or Authority Bonds.

1. Principal $_____
2. Interest $_____
3. Rental payments $_____

J. Other Deductions:

Please list the total of all other deductions or expenditures incurred within the fiscal year and not contained in any category above. $_____